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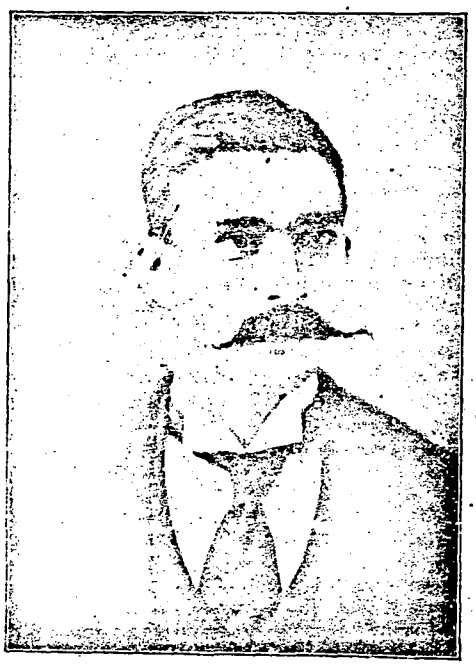
PRIVATE TELEPHONE CONSTRUCTION.

By F. H. Smith.

The early private telephone outfits were made by beginners, installed by beginners, and cared for by beginners. As a person looks closely into the private telephone business at the present time, he can see plainly the results of the work of the amateur. It is time to call a halt, to cause the "genius," as he calls himself, to get conversant with the work so that he can do it properly. At a rapid pace some of the most expensive buildings in the country are getting cobwebbed. In some cases the wires are bundled in cables and the large cables run on hard-finished ceilings; these ceilings were designed to be kept clear from such obstacles, so that they can be kept clean and free from vermin.

The contractor should go to work rightly and tell those for whom the work is to be done, that it costs money to do good work, show them how it should be done and tell them the reasons why. Any sane person will be convinced that he don't want loose, dirty wires on the floors or walls of a building if the thing is properly presented in the start. Most people like to see the wires at first, and think they are a sort of indication of some wonderful pieces of skill and work, but this notion wears off after a time and in most cases they have the work done over.

If the telephones are going into a wooden building arrangements should be made to have every wire concealed in the partitions, or if it is impossible to get inside a partition, to put the wires in a substantial moulding on the outside. Too much cannot be said against running common annunciator wires in a bundle inside a partition. Rats and mice will eat off the insulation and then there is everlasting trouble. Put the wires into a tubing that cannot be eaten by the rats and mice, or if the wires are used without a tubing, have an insulation that you are sure will not be destroyed, or nail the wires up separately. A person should not try to convince himself that rats and mice will not eat the insulation off paraffined wire. The writer has never seen any traces of rats eating the insulation off K. K. or rubber wires, and would be pleased to learn if others have ever had such insulation destroyed by such means. In such buildings as hospitals it seems criminal to run wires and tubing on the walls, but such is being done in some of the best buildings of this kind.



W. W. POHLMAN, Inventor.

When the telephones are not scattered about much, No. 18 copper wire, B. & S. gauge, can be used, or possibly a smaller size. If seven instruments were to be wired the eight wires could be run in a small channel cut in the wall; if the wires were covered with a thin layer of rubber and the rubber with a light braid, the whole bundle could be covered with a compound and the compound covered with the usual finish or with plaster of paris. Possibly to make a real good job a lead-covered cable would be best. The insulation on the wires in this case could be very light cotton, paraffined, and the lead need be but thin. The lead would make the most compact arrangement, and if it was lead cable that was run on the ceilings instead of dirty tubing, which it is impossible to get up neatly, the work could be done neater and the lead cover would be easily kept clean.

The factory with its unfinished walls seems like an easy place to run wires, but it is difficult to get in a telephone system, even in a factory, without much thought and care, if a good job is wanted. When annunciator wire is used every wire should be tacked up by itself, and where the wires pass through the floor every one should have a separate hole. Never tack the wires close together so that metal double-pointed tacks can touch each other. Two wires should never be put under one metal staple or double-pointed tack.

When a factory building is new and the partitions and walls are clean, if the wires are well tacked to the woodwork and given a good coat of lead and oil, after once dry the wires are so well fastened that they can be swept over without disturbing them. In some places we see the wires run close together on small knobs; this is wrong, unless it is a very damp or wet place. Through wet places the writer would recommend lead-covered cable, the cable to be covered with a molding, unless well tucked away, to prevent getting bruised.

When manufacturing buildings are separated some small distance apart, it is much better to use a piece of lead-covered cable to carry the circuits from building to building than to run the wires separate, as so many wires side by side, even though they be small, make a hiding place for various things.

Where a combination of cable and open wires is used much care must be taken when the cable is feathered out not to leave the open end of the lead casing so

that water can run into or moisture creep up into the cable, as the wires are close together and the insulation very thin usually. Cover the end of the cable with some hot compound, having the cable quite warm, then bend it down, feather out the wires, and fasten each one to a small peg or tack it down firmly so that the wires cannot be moved where they come from the end of the lead casing. The end of the cable and the place where the wires are feathered out should be covered with a wooden block nicely fitted and the block screwed down tightly, especially on to the end of the lead cable to keep it from being moved about or pulled back from the wires that are fast. The permanency of the cable job depends very much on holding the ends of the cable firm. From the lower side of the block the wires can be spliced on to and continued through the building. As the wires are mostly inside of buildings there is no need of making provision for lightning arresters.

If the distance from building to building be more than a few feet, or so far that the cable cannot be supported from a 2 by 4 scantling by means of a piece of No. 14 K. K. wire wound around the two, a piece of cable similar to what the electric roads use for span wire should be well fastened in one building and then pulled up tightly in the other and fastened; to this steel cable the lead cable can be secured by a No. 14 K. K. wire wound spirally full length of the span.

When it is decided to put the telephones in a factory, school building, etc., it is often a question whether to have a small central station, or to use the system in which each instrument is connected directly to a small board at every other instrument, so that a person at any one can call up another person at any other in the system without the use of a central.

The great trouble with the system with a central is that it often occurs that when a person wants to use the telephones there is no one at the switchboard. The writer knows of a high school building that cost about $125,000. The electrical devices are supposed to be the most convenient, but the telephone system is controlled by a switchboard in the office of the principal of the school. During school hours there is usually some person in the room where the switchboard is, but before and after school hours if the janitor wants to speak to some person that he may have working in some remote part of the building he has got to walk. This should not be. During the course of a short conversation the writer has seen the principal have to stop and answer a call at the switchboard. This is very nice at first, but a terrible nuisance after the novelty wears off.

Where buildings are scattered over some 1,000 or 2,000 feet apart this system must be adopted if many telephones are used, but where the telephones are all in one building, the circuits not more than 1,000 feet long, the system with independent call is much the better.

In this article we will confine ourselves to the systems where no switchboard is used, or consider only the usual warehouse system, together with the system with two or more instruments in one circuit.

There are a number of firms, independent of the Bell Co., that are now manufacturing telephones that have had experience sufficient to enable them to make good apparatus. The instruments should be secured from reliable manufacturers or dealers; the transmitters should be carbon; the pattern with the granulated carbon seems to be the most popular; hence, in a commercial sense, it must be the best. Since there are no two people of the same height, and the instrument has got to be fastened to the wall, it should have an adjustable arm.

When the instrument is in place the mouthpiece should be at such a height that it is just midway between its highest and lowest position when in use by a person of medium height. If so placed the range of adjustment is sufficient to enable both the short and tall to use the telephone with comfort. No telephone job is a good one without the adjustable arm. It is very amusing to see a very short lady try to use the average telephone; the same is true of the very tall man.

There are many telephones in use that have no battery box attached; this might do in some factories, but it seems like false economy to run an extra circuit for a battery, and the telephone is much harder to get connected with the line properly.

It is quite a common thing for a merchant in a town to have his home and store connected with his place of business by telephone. Such is true of the doctor between his home and office, also the lawyer, and some other business men and professional people.

In the smaller towns this is quite an easy matter, since the right of way for wires can be secured, but in the large towns and the cities this does not hold true. It is quite a common thing in the cities for persons to buy telephones and arrange with some linemen to put them up and string the necessary wire; but soon endless trouble with the circuits commences. The wires are found on buildings and disconnected, also on the poles of the various electric companies, when they are cut down. Before buying instruments for a private line in a city it is a good plan to try and make arrangements for the circuit. Sometimes arrangements can be made with some one of the electric companies to have the wires strung on their poles, and often arrangements can be made with the property owners to have the wires fastened to buildings, if they are to be put up in a proper manner.

When two or three places are to be connected with telephones where the wire can be strung permanently, as many complete telephones should be purchased with magneto bells for calling purposes. Two good open-circuit batteries for each instrument, a sufficient quantity of No. 14 B. & S. iron or steel wire, the best grade, and the best lineman that can be procured should be employed to put up the wires. If the poles have got to be set, get them heavy enough, so that when well tamped for four or five feet in the ground they will stand straight. Find out from the local electric companies what timber makes the best pole, in the section where the work is to be done, cost and lasting qualities considered; have them at least four inches in diameter at the top and long enough so that the bracket, if one wire is to be strung, or the cross-arm if two wires, shall be 18 feet above ground.

If the wire is what it should be and is not damaged in putting up, it should hold together during a bad sleet storm if the poles are 200 feet apart. The regular two-pin arm and pony glass will complete the outside equipment.

In the country where there are no gas and water pipes, especially if the soil gets very dry during some seasons of the year, two wires should be strung, so as to have a metallic circuit. If a river runs parallel with the pole line, it may be used for a return by running a wire from one side of the telephone to a small iron or copper plate on the bank and putting the plate where it will always be under water. In using plates in the ground they should be put deep down in wet or swampy places. Very much trouble has been had with private telephone lines when the ground has been used for a return.

Fig. 1 illustrates the arrangement of the instruments in this case. All three bells will always ring at once, and if the three ear-pieces are down a person speaking in system of ringing that is necessary. With

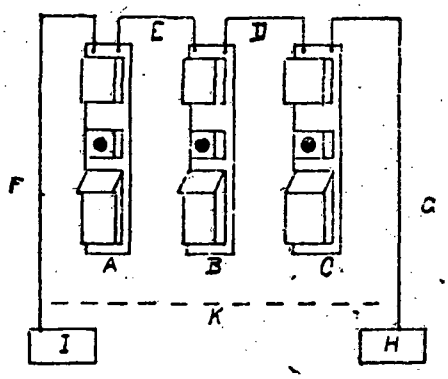


Fig. 1.

only two telephones, one ring is all that is necessary to call for either telephone, but with three it is essential to have an any one transmitter can be heard in the other two. The principal objection is the understanding that one ring shall call a certain instrument, two rings another, and three rings the third 'phone.

We will consider A, B and C to be the three telephones connected by the line wire E and D; F and G the wires that are the ones leading to the water pipe, or the ground plates H and I, or back to the wire K, when no ground return is used.

Fig. 2 illustrates the warehouse system with no central station. We will consider that we are going to install five stations. We will adopt the full length case, with battery box large enough for two wet batteries in case we should want to use two, as the instruments are going to be some distance apart, and we want to use small copper in the circuits, and get a good sharp ring at calls; we will decide on telephones with magneto bells for calls. Young and old, short and tall are to use the instruments, so we are compelled to have adjustable arms.

The factory in which they are to be installed, we will suppose, has rapidly running machinery that will tend to shake the instruments, so we will try to get

them all on the brick walls that enclose the place.

Some warehouse telephones are made with a small switchboard in them, which is operated with a plug; this plug has got to be placed by hand, and makes a very good arrangement, when every person is well instructed in the use of the apparatus and will leave the plug in the proper place when through using the telephone, so that the station can be called when wanted. Employes can, to a greater or less extent, be controlled, but in our case we will consider that persons from the outside are going to be around the factory at times and use the telephones, and we want the best service we can get, if it don't cost any more. We will adopt the round switch with five points, and have a spring in the lever of the switch so that when the hand is taken from it the switch will return to the proper point for a call. It is very trying to undertake to get a remote place in the system and fail, simply because some person in a hurry has left the switch on the wrong point.

There is one disadvantage with having the switch so arranged that it is necessary to hold the hand upon it while speaking to a person at another station, and that is the fact that the switch has got to be put in some convenient position for the hand to be placed when the telephone is being spoken into. If placed right over the battery box, when made into the telephone case, it is all right for either a right or left handed person. When not built into the case it might be put right under the battery box on the wall, but in such a palce it would be difficult to see.

The next best place would be just to the right of the top of the battery box.

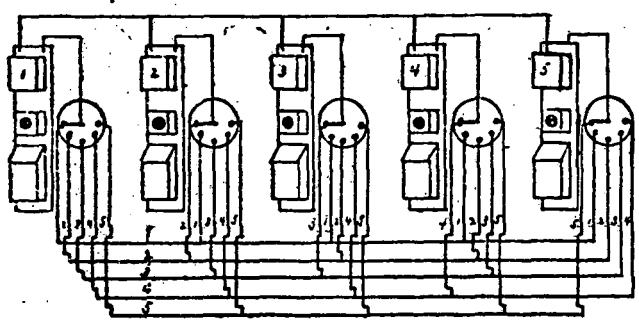


FIG. 2.

One of the first things that a person, who has a telephone that is not automatic, in replacing the switch will say is: "You cannot write while using the telephone if both hands have got to be used to operate the apparatus." This is true, and should be considered in deciding this question. It is quite an easy matter to take part of a message, write it down, and then take more and so on. This would be the writer's choice rather than have the apparatus so that it could not be used most of the time.

In our case we will not wed ourselves to any particular make of telephones, and so we will put our switch just to the right of the apparatus, as in Fig. 2. For five-telephone stations we will use annunciator wire No. 18, B. & S. gauge, with five colors or combinations of colors in the insulation. White and blue for the wire running directly to each instrument independent of the switch. Thus we will never be compelled to do any tracing, but will know just the wire to use for the binding posts that are all connected to one straight wire. In this case they are on the left of the instrument. The right-hand posts could just as well be used, but if one right-hand post is used for this purpose, for the same purpose the right-hand post of each instrument should be used to make the work symmetrical.

For No. 1 station switch wire we will use white and blue; for No. 2 white and red; for No. 3 red and blue; for No. 4 plain blue; for No. 5 plain red. On paper this looks very simple, but let a careless fellow, with but a faint idea of the task on hand, undertake this work with one or two colors of wire and some great running, guessing, testing, changing and swearing are apt to be done before the job is complete, and the wire at places will be a hopeless snarl. A good man at the business could use one color of insulation and a few tags, where the work was concealed, and come out all right, but the average all-around wireman could not do it.

In some cases the battery in combination with a push is used to work the call bells, but it is a question if this is economy in the end. Good magneto call bells are not expensive, and it is policy to always dispense with battery currents, if possible, in such work.

If connections and taps are made in the wires, all such should be carefully soldered and taped. In the engravings it looks as though it would be necessary to make many taps or many times add branch wires running to the various switches, but if the work is planned by a good man in many cases the tap will be dispensed with.—Electrical Engineer.

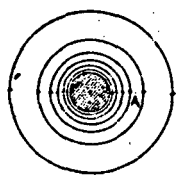


Fig. 1.
Lines of Force about Conductor carrying Current.

INDUCTANCE OF ALTERNATING CURRENT LINES.

As every circuit carrying current must be closed, a transmission or other line is simply a loop which, as in the case of the coils heretofore considered, must be filled or emptied of lines of force every time a current is set up in it or dies out. In the case of a metallic circuit, the area of the loop, of course, is the product of the length of the line by the distance apart of the wires. In the case of an earth return circuit, the effective area is, approximately, the length of the line by twice the height of the line above the ground.

Referring to Fig. 1, Biot and Savart early in the history of electrical science experimentally showed that if a current flows through a long straight wire, the force that will be exerted on unit pole at a point outside the wire is numerically expressed by twice the value of the current, c, divided by the distance from the wire to the point, or

$$F=\frac{2c}{r}$$

By definition, the force at any point is also measured by the density of the lines of force at that point, so that at a distance, r, from a wire carrying a current, c, the density of the lines will also be expressed by

$$\frac{2c}{r}$$

—of course, natural or C. G. S. units being used. Reduced to amperes and inches, this formula becomes

$$\frac{8C.}{r}$$

The above principle enables us to see why the distance apart of line wires affects the line inductance. Suppose, for example, we have a line current of 10 amperes; then the density of lines at a distance of 1 in. from the wire will be

$$\frac{8}{1}=80$$

or at the rate of 80 lines per square inch; at 4 ins., 20; at 8 ins., 10; at 20 ins., 4, etc. Now if the wires are only 4 ins. apart the area will only contain the lines of force up to a density of 80 lines per square inch, all of those beyond having no effect on the inductance, as they do not cut in and out of the loop as their number changes with change of current.

In considering inductance of lines, however, what is desired to be known is the total number of lines inclosed rather than the intensity at any given point, and this is given, in lines of force per foot of wire, by the formula, $N=15.24+140.4\times k$, where k is a value that may be found for a given case in Table I. In this table, the numbers 10, 20, etc., are the ratios of the distance apart of the wires, to the diameters of the wires. For example, the diameter (d) of a No. 1 wire, B. & S., is .3 in. and if the wires are 12 ins. apart $\frac{D}{d}=40$, and the corresponding value of k will be found in the table to be 1.9.

TABLE I.
Values of k.

$\frac{D}{d}$	k	$\frac{D}{d}$	k	$\frac{D}{d}$	k
10	1.3	50	2	120	2.38
20	1.6	60	2.08	150	2.47
30	1.77	70	2.14	180	2.55
40	1.9	80	2.2	240	2.68

Now, suppose we have a loop of No. 3 wire and wish to find its self-inductance per foot—that is, the number of lines of force which it will contain when unit current is being carried, which number will also numerically express the E. M. F. that will be generated if this current dies out uniformly in one second.

This latter consequence is due to the fact that when the current dies out in one second, all of the lines of force will have passed out of the loop; since they all pass out in one second, and in doing so cut through the wires of the loop, an E. M. F. will be generated, expressed in the natural or C. G. S. system of units, by the number of cutting lines.

If the wires are 3 ins. apart $\frac{D}{d}=3\div .3=10$ and k=1.3. The inductance per

foot will therefore, be $15.24 + 140.4 \times 1.3 = 192.3$ units, and therefore 192 units of inductive E. M. F. will be generated, which E. M. F. will, of course, be opposite to the line or impressed E. M. F.; if the lines are 6 ins. apart this becomes 224, and 266, 308 and 376 for 12 ins., 24 ins. and 6 ft., respectively. It will thus be seen that while the growth of inductance becomes smaller as the distance increases, yet the difference for lines 3⅓ ins. and, say, 12 ins. apart, is quite marked.

The above formula expresses the self-inductance or coefficient of self-induction of a line, being based upon unit current and time, and uniform rate of cutting. If the rate of cutting is not uniform, and all of the lines are not emptied out in one second, a factor must be introduced to take account of this.

Without entering into this latter problem, the following formula is given for the inductive E. M. F. of alternating currents, of sine wave form, in which E' is the inductive E. M. F. in volts per thousand feet of wire, C the current in amperes, and n the frequency (twice the alternations per second), k having the same value as before:

$$E' = \frac{n\,C\,(.9575 + 8.82\,k)}{10000} \quad (2)$$

To show the application of the formula we will apply it to two circuits: First, a transmission line 5,000 ft. long of No. 0 wire (10,000 ft. of wire), over which a current of 70 amperes at 1,000 volts and a frequency of 60, is passing; and, second, a circuit of the same length, but of No. 8 wire, the current being 10 amperes and of the same frequency and voltage as above.

From a wire table we find that the resistance of 10,000 ft. of No. 0 wire is 1 ohm and that the resistance of the same length of No. 8 wire is 7 ohms. The drop (C R) in each wire is, therefore, the same or 70 volts; that is, 7 per cent. Suppose that the wires are 12 ins. apart; since the diameter of No. 0 wire is .34 in., and that of No. 8 wire is .165 in., the values of

$$\frac{D}{d}$$

for the two wires are 35 and 74, respectively. Interpolating in Table I., we find that the corresponding values of k are about 1.84 and 2.16, respectively.

Returning now to formula (2), from the above data, we find the inductive drop on the No. 0 wire to be, in volts,

$$E' = \frac{10 \times 60 \times 70\ (.9575 + 8.82 \times 1.84)}{10{,}000} =$$

72.51 volts. Similarly, the inductive drop of the No. 8 wire is 12 volts, or the two values are nearly in ratio to the current carried, that of the larger wire being somewhat less per ampere.

The combined effect on the line of the ohmic drop, or that due to the resistance of the wire, and of the inductive drop, or that due to the inductance of the wire, is not the arithmetical, but the vector, sum of these two quantities. That is, the total loss of voltage is not E+E', where E is the resistance drop, but

$$\sqrt{E^2 + E'^2}$$

In the case of the No. 0 wire, E=70, E'=72.51, while for the No. 8 wire the quantities are 70 and 12, respectively. Consequently, the total effective drops in the two lines are

$$\sqrt{70^2 + 72.51^2} \text{ and } \sqrt{70^2 + 12^2}$$

or 100.5 and 71.02, respectively.

It will be seen that while the inductive drop in the smaller wire is negligible, this is far from being true with respect to the No. 0 wire, the drop on which is increased from 7 per cent to over 10 per cent by the use of an alternating current having a frequency of 60 periods per second. As the increase of the inductive drop is proportional to the frequency, for the usual lighting periodicity of 133, the inductive drop would become 161.2 volts for the large wire, and 26.8 volts for the smaller one; combining these quantities with the resistance as before, we have 175.7 volts and 74.8 volts. Here, again, while the drop on the large wire is increased to over 17 per cent, the increase for the small wire is negligible, being less than one-half of 1 per cent.

The very large increase of drop in large wires carrying alternating currents is usually ascribed to the effect of the large wire itself. As will be seen above, this is only indirectly true, the larger currents carried by such wires being the direct causes of the increase. In fact, the inductance (inductive drop divided by the current) is actually decreased with increase of size of wire.

The drop due to inductance may be decreased to any desired extent by subdividing the wires. For example, as seven No. 8 wires are about the equivalent of one No. 0, by using seven pairs of the former in parallel instead of one pair of the latter, the total line drop would be reduced to that calculated for the No. 7 wire, in which the part due to inductance is negligible. This follows from the fact that each pair of the smaller wires, if the different pairs were sufficiently separated, would be under exactly the same conditions as to inductive and ohmic drop as the single pair considered. The same effect would be produced by transposing the wires with respect to the different pairs. No reduction in drop, however, would occur by splitting only one of the wires, as in this case the conditions with respect to the cutting of lines of force would not be changed.

Of the two components of drop on alternating lines, for a given current, that due to resistance will be decreased, of course, in direct proportion to any increase in the sectional area of the line, but the inductive drop will be affected to a much less extent. As an example, suppose in the case of a No. 0 wire and a periodicity of 133, we were to double the diameter of the wire, thereby reducing the resistance of the line to one-fourth ohm. The resistance drop (C R) would thus be reduced to $70 \times \frac{1}{4} = 17.5$ volts, while from formula (2) we find that the inductive drop would become 115.7 volts. That is, by quadrupling the section of the line the resistance drop is reduced 75 per cent, while the inductive drop is only reduced 27 per cent, and still remains larger than the original resistance drop. The effective drop in this case would be

$$\sqrt{17.5^2 + 115.7^2} = 117.1.$$

Thus, by quadrupling the amount of copper, the effective drop is only reduced from 17.5 to 11.7 per cent, while with a continuous current the drop on the new conductors would only be $7 \div 4 = 1.75$ per cent. It is thus evident that, when inductive drop on an alternating current line becomes appreciable, the only practicable remedy is to split the conductors. —American Electrician.

SAFETY LOCK AND ATTACHMENT FOR ELEVATORS.

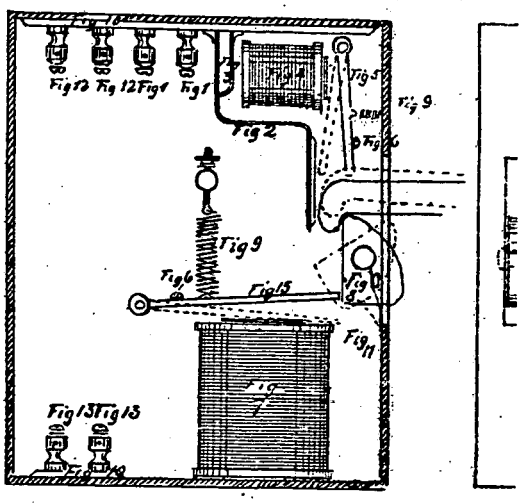
W. W. Pohlman, formerly of Nashville, Tenn., now residing in St. Louis, Mo., has invented a new device for elevators, which prevents the car from being started as long as the door remains open.

It is claimed to be a life-saver from accidents occurring by the car starting while the door is open, or to persons looking into the shaft through a door left open by the carelessness of the elevator boy, and also prevents the elevator car from descending on workmen who may be working under the car in the elevator shaft.

This attachment can be placed on any passenger or freight elevator that has doors, and is much cheaper than any attachment on the market.

The device is composed principally of electro-magnets, which are operated by the shifting of the controller cable, as explained in cuts below.

The door in opening, closes the circuit by contact spring shown in Form A Fig. 2 and Fig. 3 connected to Binding Posts



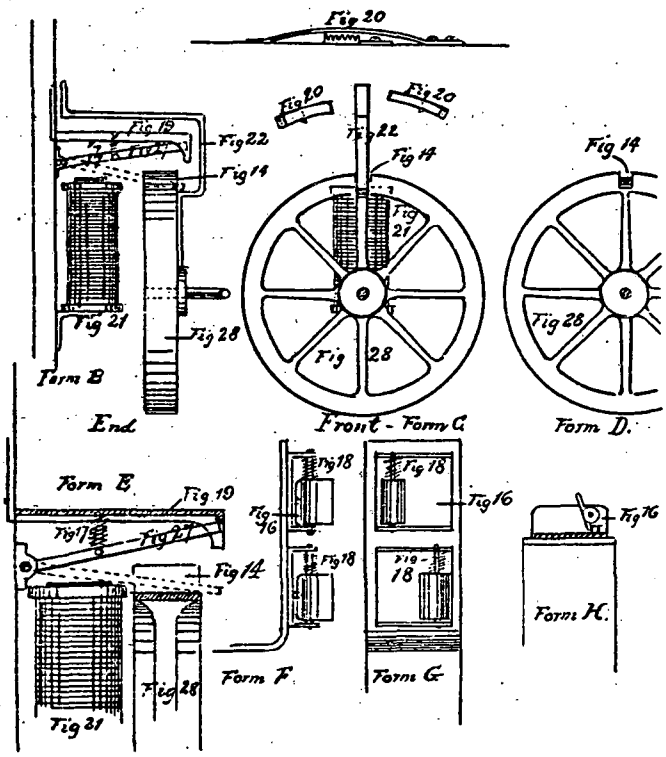
Form A.

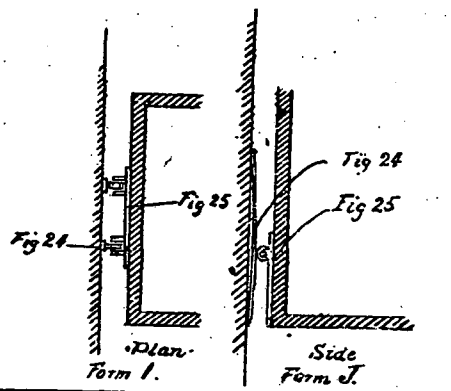
Fig. 1, which are connected to controller magnet shown in Form B Fig. 21, drawing armature Fig. 27 into slot Fig. 14, locking the controller wheel Fig. 27, which is fastened onto the controller cable pulley shafting to prevent cable from moving while door is open. In closing door the latch forcing against contact spring Fig. 2 in Form A opens the circuit with opposite contact spring Fig. 3, allowing spring Fig. 17 withdrawn armature Fig. 27 Form B from slot Fig. 14, releasing controller wheel Fig. 28 so as to start elevator.

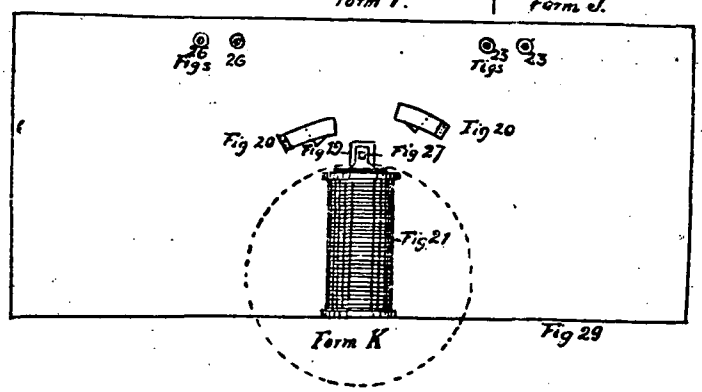
The elevator in going up or coming down and stopping at a floor, the roller contacts Fig. 25 Form I, closes circuit with Fig. 24 Form J, which are two feet above and below each floor, and in shifting controller cable in car moves controller wheel Fig. 28, on which the brush arm Fig. 22 in Form C is connected, carrying brushes Fig. 16 which forms contact on slides Fig. 20 in Form C, closing the circuit through magnet Fig. 7 Form A, connected to binding posts Fig. 13, drawing armature Fig. 15 down, allowing the

swivel catch Fig. 8 to be released and unlocking the door, swivel catch Fig. 8 thrown back into position by spring Fig. 11, armature Fig. 15 being released is drawn up by spring Fig. 9 against stop Fig. 6.

Magnet Fig. 4 in Form A connected through binding posts Fig. 12—12 is to release door catch when elevator is even with floor by roller contact Fig. 25 Form I, closing circuit with springs in elevator shaft by drawing armature Fig. 5 Form A from over the door catch so it may be raised. When the elevator is not even with the floor, the circuit being open in magnet Fig. 4, the armature is drawn back by spring Fig. 9 against stop Fig. 6, holding armature over the door catch to prevent door from being unlocked while elevator is at another floor. Fig. 10 is a non-conductor for binding posts to contacts. Fig 18—18 are springs to hold brushes Fig. 16 in position. Fig. 29 Form K is board for springs, in which the controller wheel comes in contact.







FUSES FOR BRANCH CIRCUITS.

By S. H. Sharpsteen.

There is much appearing in the electrical papers in relation to electric wiring, but the writer thinks that there are some points of fundamental importance that have not been touched upon.

The matter of fuse lengths for circuits of about 100 volts, entering buildings for incandescent work, has never been considered as it should have been by the fire underwriters. The underwriters' inspectors will enforce many matters of no importance and will allow a small house to be connected by service wires to a circuit from a 300 or 500 light transformer. If the lightning punctures the insulation of the transformer, or if the insulation gets broken down from other causes which are common and happen every day, the house wiring is, or may be, subjected to 1,000 volts or more pressure. A weak place in the insulation of the house wiring gives way, the current goes through to the ground, the fuse blows in the fuse block on the branch, since it cannot be above 6 ampere capacity, and comply with the rules, but the 1,000 volts pressure crosses after the 6 ampere fuse has gone; since the gap will not open a 1,000-volt circuit the branch block burns up and possibly the building is fired before a fuse goes somewhere to relieve the trouble.

Until recently it has been the practice to place a fuse in bracket or fixture just large enough to carry current for the lamps on bracket or fixture. In case of a combination bracket with one 16-candle power 100-volt electric light, a fuse of 1 ampere capacity would be large enough. If the primary current of 1,000 volts should start through the wiring of this fixture to the ground, its fuse would be very apt to be the first one blown, but the fuse gap would not be sufficiently large to open the 1,000 volt circuit, hence the porcelain would crack and fall to pieces and the wire be set on fire.

If the transformer be 500 light the primary fuse may be all the way from 25 to 40 ampere or even a piece of No. 12 copper wire. It is not absolutely necessary for the transformer insulation to break down since, either by a bare wire drawn across a service wire and 1,000-volt main or by the service wire coming in contact with a 1,000-volt main, the house wiring may get a 1,000-volt current.

The average person will suppose that the main fuse at the entrance block will go on such an occasion, but for a building of 100 lamps the main fuse would have to be at least a 50-ampere, and a 50-ampere fuse would hold for a long time on many of the 1,000-volt circuits where they run for miles and are of pretty small wire.

Many persons engaged in the electrical business may have their doubts as to getting the proper combinations for such trouble, but the writer had two cases come under his notice, both in the same house and both cases only a few months apart. The house was the home of J. M. Johnson, Binghampton, N. Y.

In the first case there was evidence to convince one that the mica insulating joint and the insulation of the wire in a bracket had broken down and the rubber-covered wires that came through the porcelain tubes in the plaster were burned up for one and one-half inches into each tube; the arc had burned the tubes away somewhat. The tubes came through lath and plaster, and the ends running out into the canopy had been very hot. If the outlets had not been run through porcelain tubes one can imagine what the result would have been, as the cross occurred in the night.

Mrs. Johnson complained of smelling rubber burning, but no search was made. There was a black place on the wall about 14 inches in diameter, the horse shoe cut-out was in many pieces and the insulation was almost all off the insulating joint. The writer was the first one to remove the burned canopy, and be asked if all the lamps in the house did not refuse to burn the next day, and the answer was, "Yes," and they also said "that another house did not have any light until after the transformer was changed."

The second case occurred in the daytime and was quite amusing. For some reason there was a gas tap in the kitchen outside of a canopy of an electric bracket. The help about the house had been in the habit of hanging some kitchen implement on the gas tap, and it seems that the implement while hanging on the gas tap got against the canopy of the electric fixture and the conditions were right to ground the primary circuit of 1,040 volts. The kitchen help, on seeing the fire between the gas tap and the bracket, ran out in the back yard.

The fuses controlling the various branches were in a closet on the second floor, and when the cross occurred one set of fuses went off, but the arc held and roared so that some of the occupants of the house who were on the floor became frightened and ran into the yard to join the others. The transformer was burned out again and another was put in its place. The branch block that was in circuit with the trouble was broken all to pieces, and if it had not been on plaster might have set the building on fire. In neither case did the main fuse blow.

Not long since the writer called at an electric railway power house and found some men trying to pound a brass bearing off from the armature shaft of an old VanDepoele motor that had been used to drive some iron working machinery. It seems that it had been running the night before when the power house was shut down and was not disconnected from the swithboard. The generator switches had all been thrown but this shop machine had been left connected with bus bar, and bus bar connected with trolley wire and mains.

Some time after midnight the watchman heard this motor running at a tremendous speed, and since all the generating machinery in the power house was shut down, he concluded that the shop motor had become bewitched, and would not go near it to throw the switch to disconnect it. The result was that it kept on running, and it seems that it received its current from an arc wire that had got crossed with the trolley wire, and, having a good big voltage, ran at a tremendous speed. For the want of proper lubrication it got a hot bearing and ceased to go even the next day, when it was wanted to run the shop again.

Some electricians, purely theoretical, may wonder where the current from the opposite side of the 1,000-volt circuit is going to get into the ground; this is a good subject for an article of a number of columns. But suffice it to say that in practice, if there is a good ground on one leg of a high pressure circuit, the circuit being made up of weather-proof wire and being strung for miles in every conceivable direction, oftentimes through the leaves on trees, the current will get through on the other side, although the amount might be small. Two amperes is all that is necessary to make serious trouble, and the fact that only a few amperes being able to pass might make the trouble all the more serious, as the arc would hold longer without some larger fuse blowing of a greater fuse gap. This leakage might occur much easier during a rainy season. It is amusing to hear some insurance inspectors tell how secure they know circuits to be against this kind of trouble.

There is no question that it is a common thing to get the primary current of an alternating system, into house wiring or wiring intended for a pressure of about 100 volts, and since such a thing is liable to happen at almost any time, does it not seem strange that the fire underwriters will allow branch blocks with small gaps to be used? The wires are crossed when they are put into the branch block, and when the branch block is cracked to pieces the wires lie one across the other.

The fire underwriters will allow, as a rule, but a few lamps on one branch circuit distributing current to lamps; for safety from fire each one of these branch circuits should have a pair of fuses long enough to break a current coming from the highest voltage circuit in the city.

SOMETHING ABOUT STORAGE BATTERIES.

(Extract from IXth paper on design and construction of Electric Power Plants. By B. J. Arnold, published in the Western Electrician.)

A storage battery or accumulator is desirable as an adjunct to an electric power station in certain cases. In European practice storage battery auxiliaries are common, but in this country their introduction seems to have been slow. Patent litigation between rival manufacturers has had much to do with their tardy progress, although the failure of numerous poorly constructed and unintelligently operated installations has had the natural result of creating a quite general impression that storage batteries are expensive and undesirable. A number of large and successful installations made during the last few years has done much, however, to dispel this prejudice against batteries, and a growing confidence in their use is noticeable among central station engineers. It is, therefore, reasonable to predict that in a few years accumulators in central station practice will be as common in this country as they are to-day in Europe

The chemical theory of the common lead accumulator may, for our present purpose, be briefly disposed of.

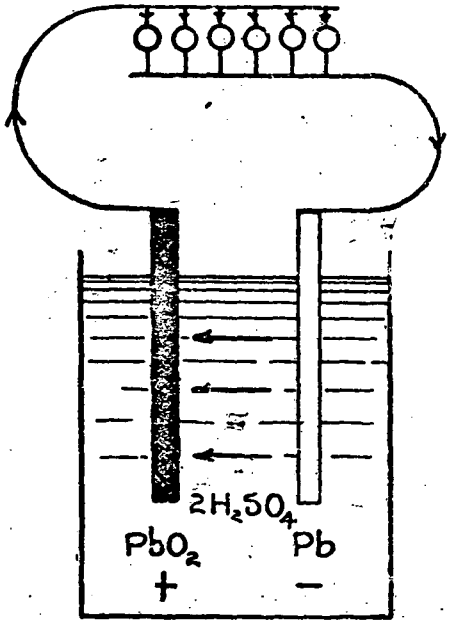


FIG. 47—ACCUMULATOR CELL IN A CHARGED CONDITION DISCHARGING.

The real reactions taking place in a battery cell while being charged and discharged are quite complicated, but for all practical purposes the probable chemical changes may be represented by the symbols shown in Figs. 47 and 48.

Fig. 47 represents the cell in a charged state. The cell shown consists of two plates of lead in an electrolyte of dilute sulphuric acid (H_2SO_4). The surface of the positive plate is covered with a coating of peroxide of lead (PbO_2), while the surface of the negative plate is pure lead (Pb) in a spongy condition. When the positive plate is thoroughly peroxidized the cell is said to be charged, and at this point has its highest electromotive force. If, while in this condition, the plates of the cell are connected through any device tor using current, as shown in Fig. 47, a circuit will be completed. An electromotive force will be set up between the plates, which will cause a current to pass in the direction shown by the arrows and thus do useful work; the cell is then said to be discharging. As the discharge con-

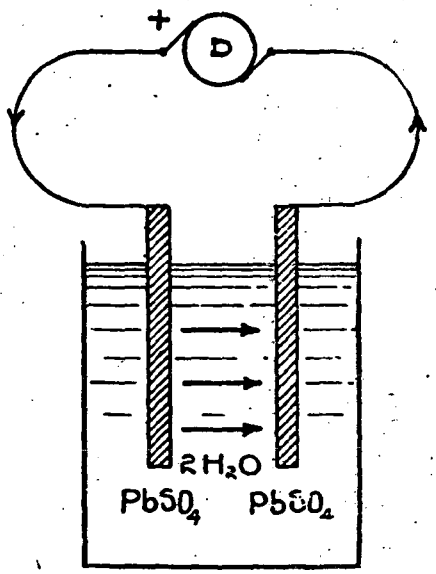


FIG. 48—ACCUMULATOR CELL IN A DISCHARGED CONDITION CHARGING.

tinues, the coating upon the two lead plates gradually changes its chemical composition, until, when the cell is completely discharged, we find them both in the same condition, as indicated by the symbols in Fig. 48. Here we see that the sulphur radical of the sulphuric acid has entered into combination with the coating of "active material" upon each of the plates by a double sulphating process, forming lead sulphate ($PbSO_4$). It will be noticed that this action reduces the density or specific gravity of the electrolyte. These changes may be indicated by symbols as follows:

CHARGED.

Positive plate		Electrolyte		Negative plate	
PbO_2	+	$2H_2SO_4$	+	Pb	=

DISCHARGED.

Positive plate		Electrolyte		Negative plate
$PbSO_4$	+	$2H_2O$	+	$PbSO_4$

When it is desired to recharge the cell the plates are attached to a source of supply, as shown in Fig. 48, and the current sent through the cell in a direction opposite to that of the current passing through it when discharging. This charging current reverses the chemical reactions which took place upon the discharge, and at the end of the charge the plates and the electrolyte are restored to their original condition.

The action of an accumulator is thus seen to be entirely a chemical one, and the cell does not, therefore, actually store or retain electrical energy.

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AS THE ELECTRICAL WORKER reaches the men who do the work and recommend or order the material, its value as an advertising medium can be readily appreciated.

St. Louis, Mo., August, 1897.

W. N. GATES, - SPECIAL ADVERTISING AGENT,
29 Euclid Avenue, CLEVELAND, OHIO.

The great miners' strike is still on, and the beginning of the end is not yet in sight. The miners are making a noble fight, but on account of poor organization when the strike started it seems almost impossible to get the men all out, and those who remain at work are so short-sighted that they do not seem to realize that they are jeopardizing the chance of the miners to win, and aiding the mine operators in enslaving their fellow workers.

The Walker Co., of Cleveland O., has won a notable victory against the Electrical Trust in the Circuit Court of Appeals for the Second circuit in New York, which declared that the Van Depoele trolley patent No. 495,443 is invalid, on the ground that the prior Van Depoele patent of April 1st, 1890, was for the same invention, and that the two patents presented a case of double patenting, and therefore the patent was void. (This is very similar to the celebrated Berliner patent case.) This decision leaves the trolley free to all, and breaks what promised to be as bad a monopoly as the lamp or telephone monopoly. The decision is a severe blow to the General Electric, as that company depended on the Van Depoele patent to hold a monopoly on the trolley business.

Judge Showalter of the United States Circuit Court, sitting at Chicago, has decided that the three-cent street car fare law passed by the last Legislature of Indiana is unconstitutional. This decision sets aside the decision of the Supreme Court of the State, which has affirmed the constitutionality of the law.

In his decision Judge Showalter holds that the Federal court is superior to the State court, and that decisions of the latter are not binding on the Federal judiciary.

The question may well be asked what rights have our States and our State courts got? State judges are elected by and are responsible to the people. Federal judges are appointed, and are not responsible to the people. Does this make any difference in writing a decision? Federal judges have given us government by injunction, innumerable decisions in favor of trusts and monopolies, and now declare that the Supreme Judges of a sovereign State do not know their business. Where will this centralization end? "Imperium in imperio;" has it lost its meaning?

The world may move, but the people living on it are making very little progress. Nearly 300 years have passed since Galileo was compelled to resign as professor of mathematics and leave the University of Pisa, because his teachings did not harmonize with the ruling powers of the university. He was not allowed the freedom to teach what he thought was the truth. Three hundred years have passed and the scene has shrifted to the eastern seaboard of a world that was scarcely known to Galileo, and a university that was founded when Rhode Island was an English colony has "fired" its president and most prominent professor for what? Simply because his ideas on bimetallism did not harmonize with Rockefeller and a few other multimillionaires. Is this our boasted freedom? Are our universities to be so handicapped that a few mililonaires can dictate their policy and teachings by a bribe of a few million dollars from the many millions stolen? The powers that have forced Prof. Andrews out of Brown University, forced Prof. Bemis from the University of Chicago, and to-day so intimidates the leading universities of the country that the professors dare not teach what they believe, and to their eternal shame let it be said that they have not the courage of Gallileo to say that "the world does move."

It is only in our State universities that there is any freedom of thought left. Had the University of Wisconsin been depending on Rockefeller or Pullman for support, Prof. Ely would long since have had to sever his connection with that institution. The same can be said of nearly all State universities.

But two more issues of the Worker before electrical workers again meet in biennial convention, and thus far but few suggestions have been made or questions discussed that should receive the attention of the delegates. Our coming convention should mark an era in our organization. We have passed through the experimental stage, and should be able to get down to a practical working basis, and devise ways and means for organizing the hundred thousand or more electrical workers in the United States. There seems to be heavy grounds on our circuit, which cause such leakage that it is almost impossible to increase our voltage. If the National Brotherhood had all the members ever initiated with no loss except those who have died or left the trade, we would to-day rank among the largest labor organizations. When the record of two years' work since our last convention is summed up, it will probably show that about as many new members have been taken into our organization during that period as will be our total membership at the convention. Why have so many members dropped out, and how can this be remedied, are questions that should be thoroughly discussed, and ways and means devised that will prevent such leakage in the future. The history of the National Organization is simply the history of each Local in a magnified form, so that this question can be asked and answered at home, and if a satisfactory answer can be given and a remedy applied in the Local, it will soon be manifest in the National. We have good healthy unions that are no larger numerically today than they were two years ago, notwithstanding the fact that not a month has passed that they have not initiated a number of new members. Some unions for a time may break this record and have a rapid increase in membership, only to reach a standstill and then drop back. Who can give a remedy?

APPEAL FOR THE MINERS.

On July 24th, Samuel Gompers, President of the American Federation of Labor, sent telegrams to the general officers of thirty-eight national and international organizations, requesting each to be represented at a conference to be held at Wheeling, W. Va., on Tuesday, July 27th. At this conference the leading organizations of the United States were represented, and at its close issued the following appeal, which speaks for itself and should be acted on promptly by all unions:

"A wail of anguish, mingled with desperation, arises from the bowels of the earth, and the miners' cry for relief, for some degree of justice, touches a responsive chord in the hearts and consciences of the whole people. Drudging at wages, when employed, which imply and portend misery, starvation and slavery, the miners are confronted with a condition by which their scant earnings are denied them, except through the compulsory 'pluck-me' stores which out-Shylock the worst features of this nefarious system, is a stigma on the escutcheon of our country, and a blot on our civilization.

"We, the representatives of the Trades Unions and of all organized labor of the United States, in conference assembled to consider the pending struggle of the miners for wages sufficient to enable them to live and enjoy at least some degree of the necessities of life, are determined to forever put a stop to the state of actual starvation in which they are now engulfed.

"The deplorable condition of the miners is well known to all our people. They live in hovels, unable to buy sufficient bread to ward off starvation; in many cases not sufficiently clothed to cover their nakedness; their children unfit to attend school because of lack of food and

clothing, making them a danger to the stability of our republic.

"We feel assured that all men and women who love their own families, or who have one spark of human sympathy for their fellows, cannot fail to give all the aid in their power to enable the miners to win their present battle.

"The representatives of the miners have been restrained by injunction from exercising their fundamental right of public assemblage and free speech to present to the world their grievances. We, as American citizens, resent this interference with the rights guaranteed to us under the Constitution.

"In the ordinary affairs of life all enjoy privileges and rights which constitutions neither affirm nor deny, but the guarantee of the right of free public assemblage and free speech was intended to give opportunity to the people, or any portion of them, to present the grievances from which they suffer and which they aim to redress.

"We denounce the issuance of injunctions by judges of West Virginia, Pennsylvania and other States as wholly unjustifiable, unwarranted, unprecedented, more especially in the absence of any exhibition or manifestation of force or lawlessness on the part of the outraged miners.

"We call upon the Governor of West Virginia and upon the Governors of all other States and all public officials for full and ample protection in the exercise of our rights of free speech and public assemblage. We have no desire to trespass upon the rights of anyone, but we demand the exercise of those rights handed down to us by the founders of our republic.

"We recommend that indignation mass meetings be held on Thursday, August 5th, throughout the entire country to give expression to their condemnation of the unwarranted injunction interfering with the rights of free assemblage and free speech, and also extend sympathy and support to the mine workers to the utmost extent.

"We hereby call upon each national and international organization of labor to send representatives to act for and by the direction of the officers of the United Mine Workers as organizers in West Virginia and such other States as may be necessary.

"This struggle of the miners deserves not only sympathy but the financial support of all organized labor and humane people.

"The battle for bread can only be won by sacrifice; organizers in large numbers must be kept in the field; the great expense of the Mine Workers' Union must be met, and we call with entire confidence that the American people will liberally respond and send contributions to W. C. Pearce, Secretary of the United Mine Workers, Columbus, Ohio.

"Fully imbued with the heroic struggle which the miners are making for pure womanhood and innocent childhood; for decency, for manhood and for civilization, and with the consciousness of the justice of their cause, and of the responsibility of our action, we call upon the workers of our country to lend all possible assistance to our suffering, struggling fellow workers of the mines and to unite in defense of our homes, our manhood, our rights, our citizenship and our country."

This strike started on July 4th, a day supposed to symbolize the birth of our freedom, but which, to the miners at least, was a hollow mockery, and they naturally concluded they might as well starve striking as to starve under the conditions under which they were living. It is useless to pass resolutions of sympathy. Sympathy will not fill the stomach of the poor miner or his starving wife and children. He needs something more substantial, and as "he gives twice who gives quickly," who will be first to start her?

In the June issue of the Worker, mention was made of the Union Fishermen's Co-Operative Salmon Packing Co. of Astoria, Oregon, and how the salmon fishermen of the Columbia River were forced by the Salmon Packers' Association's blacklist to engage in the salmon-packing business. N. J. Swindseth, a representative of the Co-Operative Packing Co., passed through St. Louis last week on his return trip from the East. He stated that he had a very successful trip, and succeeded in placing their salmon, the Co-Operators' brand, with some of the largest dealers, and if organized labor and those friendly to organized labor call for this brand of salmon and thus create a market for it, they could greatly assist the union fishermen of the Columbia River, in addition to getting the best salmon on the market.

The Metal Polishers, Buffers, Platers and Brass Workers of North America informs us that the difficulty which has existed for eighteen months between the above union and the Overman Wheel Co. of Chicopee Falls, Mass., has been amicably adjusted, and any boy caught (boycott) on these wheels in the future will be let ride in peace. This is another victory for organized labor, and proves that the boycott when vigorously used is not such an antiquated weapon as our socialistic friends would have us believe. Each month recently we have had the pleasure of recording such victories as the above. May the shadow of King Boycott never grow less until the laborer receives his full share of the product of his labor.

St. Louis, Mo.—The Imperial Electric Light, Heat and Power Co. has made a start by securing a 99-year lease on the property at the southeast corner of Tenth and St. Charles Sts., and will commence in a few days the construction of a half-million-dollar plant. Messrs. Bryan & Humphrey, the well-known mechanical electrical engineers, will draw the plans and superintend the construction. Contracts have already been let for the machinery. The engines will have a capacity of 10,000 horse power. The building will be five stories, and cost not less than $100,000.

The president and financial backer of the company is Chas. Boettcher, a Denver banker, who has had much experience in the electric light business, being interested in plants in Salt Lake City, Leadville and other Western cities. E. G. Bruckman, a well-known St. Louis contractor, is secretary and general manager.

FROM OUR UNIONS.

UNION NO. 1, ST. LOUIS, MO.

Being duly elected by the members of No. 1 to fill the unexpired term of our most interesting correspondent, "Electron." I shall endeavor to do my duty as I see it, although I assure you in advance that I am unable to compete with the unknown. If you would only make yourself known, I am sure the boys of No. 1 would tender you a hearty vote of thanks for your valuable services. Is it a go?

I must ask you to be lenient with me in my first effort, as this is a new branch of the business to me; besides I am working out in the suburbs and don't have much opportunity for newsgathering. I have had a contribution box made for the boys to drop notes of interest to electrical workers in, and am going to place it in the reading room, so I guess I can flood you with good news next issue.

In regard to work, we haven't an idle brother in the city at present, which is something unusual. However, we anticipate a decline of inside work in the near future. Besides jobs now under way there is only one job in sight, which is an 18-story office building to be erected on the northeast corner of Sixth and Olive streets. Work on the foundation is to be commenced at an early date. The building will be modern in all its details, including a cold storage system to furnish ice water to every room. The deal was closed last week for the lot, being on the 99-year plan. The price paid is $19,000 per year. By the way ,a few small lots in the center of population in a city is preferable to the whole Klondyke mining region.

The Liggett & Myers Tobacco Co. job is progressing rapidly, Bro. C. Warner superintending from the largest to the smallest detail. The class of work he is putting in will speak for itself many years from now. There is one thing certain, you cannot do work too substantially, and as to looks, Bro. Warner has an eye for mechanical-looking work which can't be beat. Besides having full charge of electrical work, he also has full charge of the sprinkling system, which is no small job in itself. There are nine of the boys working for Bro. Warner, and I very much fear he will spoil them for all future jobs by the liberal way in which he issues Star tobacco every Saturday night. I will tell you all about the plant at some future time, as I know it will interest a great many of the brothers.

The linemen are coming to the front again. Quite a number of them allowed themselves to be suspended on account of what they considered high dues and no benefits, but our supplementary by-laws provides benefits and a $5.00 initiation fee for linemen, while for wiremen the fee is $10.00 and no sick benefit. I hope to see all the linemen on the inside before many moons.

The underground work seems to be at a standstill. I believe the Kinloch Tel. Co. expect to commence setting poles about the first of November. At present writing I am unable to tell much about other companies.

A great many of the brothers will be surprised to learn of the sudden resig-

nation and disappearance of J. Taubold, who was superintendent of construction for the Bell Tel. Co. for the past eighteen years. It is currently reported that he left the city in company with a woman of spiritualistic views. Who would have thought that Jack was a spiritualist. It is also reported that he left his family in very destitute circumstances. His wife has been prostrated with grief since his disappearance, over a week ago.

Brother Secretaries, what are your unions doing in the line of discussing the labor problem, and finding out what is best for us, so that you can instruct your delegate and have your views presented in some practical form at our national convention to be held soon at San Antonio, Tex.? For my part, I think we ought to make this the best convention ever held in the history of our organization. I think we ought to devote a great part of our time at the meeting to the study of our economics, and try to find out where this great leak is in the distribution of wealth, and when we send our delegates to the convention instruct them on these lines, that they may take some definite action on the matter. I also think we ought to have discussions of economics printed in our working rules in the ritual, so that we may have some regular order under which to discuss these subjects.

Why such conditions as we have in this country should exist for any length of time is a mystery to me. The only solution I can offer is the people are satisfied with their lot, and would not have better if they could. Brothers, did it ever occur to you that there is something radically wrong with our social structure when so many people are on the verge of starvation and tramping the country seeking employment in order to earn enough to eke out a bare animal existence, and to be refused even that?

I would like to hear from some of the brothers who think they know what is wrong with our social system.

Brothers, you will take notice that J. L. Cuthbert was rejected by No. 1 at our last meeting. Moral character very bad. Look out for him.

HARRY MYERS, Press Sec'y.

UNION NO. 6, SAN FRANCISCO, CAL.

Notwithstanding the fact that I have not as yet heard from my initial letter, I must keep in conformity with the rules and regulations prescribing the duties of the Press Sec'y and dispense with the formalities of the office in giving the views of the critics and more experienced writers, and send you my contribution in advance.

Well, brothers, I have indeed a task this time, for the very simple reason that I am not endowed with the faculty of being an emotional scribe, as it would necessitate such to give you the details of the most tragic death of our ex-brother, Geo. A. Frost, who, while at work on the morning of July 2d, in the western part of the city repairing on a 30-foot pole, in some unaccountable way lost his hold and fell headlong to the pavement below, sustaining a severe fracture, which resulted in his death shortly afterward. A widow and five small children survive him, making this a most pathetic case. Bro. Frost was born in the north of England, and was about 30 years of age, and an old employe of the Edison Light & Power Co., for which concern he was employed at the time of his death. Too much cannot be said as to his ability as a workman, his character, as well as the good and loving husband and father that he was to his wife and children. We mourn his loss sadly, and sincerely hope that his most unfortunate widow will soon reconcile herself to the inevitable and trust in the goodness of God for her welfare. One of the boys has requested me to express the inmost thanks of Mrs. Frost to all friends and acquaintances of her deceased husband and herself for their profound sympathies and immediate attention to her and her children during her sad hours of distress. I have taken the liberty to use the columns of your valuable paper to express the sentiments and true appreciation of Mrs. Frost, as I concluded it the best means to notify the boys, as all who are in the electrical business never overlook an issue of the Worker.

I hope the boys will forgive this short contribution, as I find it difficult to sufficiently collect my most scattered thoughts to confine myself to a regular schedule of subjects on which to write. The fact of the matter is, that I am trying now to stretch my contribution to its utmost, and I can assure you that my budget of news is about exhausted. Yet there is one thing that I have been prevailed upon to mention, and that is about our ex-Press Sec'y. The brothers tender him their sincere thanks for his attentiveness to the duties of Press Sec'y, and also wish to state that the many happy moments spent in perusing his many lengthy and interesting contributions are still fresh in the memories of each and every one of them.

Independence Day passed in the usual way, as I suppose it does in all large cities. Quite a number of the boys were kept on fire duty night and day. Every true patriot floated the nation's colors and sang the nation's song on the appearance of the Goddess of Liberty. The small boys' accidents, as usual, were numerous, and the emergency hospitals did an alarming business.

During the week the great Christian Endeavor Convention was held in our city, and was most impressive indeed. One to look upon such a gigantic gathering would wonder where so many good people came from, there being upwards of 35,000 assembled. The city was gaily decorated with banners, streamers, and flags, presenting a very gay apearance. The blue and the gold, the prevailing colors, predominated like the delegates, the contrast being about 16 women delegates to 1 man delegate. Preceding all the confusion the city was honored with the presence of Hon. Wm. J. Bryan, the defeated Democratic champion for Presidential honors, who delivered two speeches, one in the afternoon and one in the evening. It seemed that the whole State turned out to see him, the crowd was so dense. I was in it, and satisfied my curiosity by seeing the gentleman myself.

Well, brothers, I know that my contribution is becoming interesting; I can actually feel it; so before I get myself disliked I shall conclude, and hope that I can give you some electrical news in the next issue, as I have as yet nothing in that line that is worthy of mention; so with the usual share of happy remembrances from No. 6, coupled with the compliments of our fine weather, I am,

A. E. Y., Press Sec'y.

UNION NO. 8, TOLEDO, O.

This being my first attempt as Press Sec'y, I scarcely know what to say. Our old Press Sec'y has been sick for several weeks, and, I am sorry to say, lost his wife during his illness. On this account he was not able to let you know how we were getting along in our work, although he was able to be at our last meeting, when we elected new officers. I forgot to mention his name, S. M. Strub. As he is a hot union man, we don't want to have his name left out.

We have changed our meeting place since our last letter. We now meet every Friday at Wallahalla Hall, 317 Monroe St.

Work is on the bum here. The Traction Co. has got most of their wire underground, and so have the Telephone Co., so that the streets look deserted.

I don't know what else to write about, so I will close the circuit by telling you the names of our new officers. We still have the old reliable President, Peter Crowley, with S. M. Strub, Rec. Sec'y, and Fred Lewis, Fin. Sec'y and Treas.

C. E. MARRYOTT, Press Sec'y.

UNION NO. 9, CHICAGO, ILL.

This may be too late for publication. If so, consign it to the waste-basket. My duties at home for the past three weeks have occupied my mind to such an extent that I forgot all about a letter for the Worker until to-day, July 29th.

Chicago is still on the dull times list. The street railways are about one or two degrees better than last month, which is hardly noticeable. The South Chicago lines are both doing a little work, while the Chicago and Northern Pacific and North Chicago are carrying about the same force they had last month. The Telephone Co. is doing some country work, while their city work is on a standstill. The Postal talks of doing some outside work shortly—I think in Indiana. The Nickel Plate is rebuilding between here and Cleveland.

The People's Electric Light Co. are making extensive and needed repairs in Chicago, South Chicago and the suburbs south. The Alley "L" road has at last started, but I have not learned what class of men are employed. No union wire fixers have reported as being employed there yet.

Walter Halpen has charge of the work for Mr. Meyers, the contractor.

No. 9 is to have a picnic August 29th at World's Fair Park, Sixty-seventh St. and Stony Island Ave. There will be the usual pole-climbing, rope throwing, etc., contests, and we have also added a trimmers' contest. The contesting trimmers are to climb a 30-foot stepped pole and trim a double lamp, and come down to score. The members of the Trimmers' Local Union No. 19 are well pleased, and will be out in full force. Come one, come all, and enjoy yourselves.

C. WARREN B., Press Sec'y.

UNION NO. 17, DETROIT, MICH.

In my first effort to the Worker I must say that I am sorry I cannot keep up the excellent standard of essays established by my predecessor, Bro. Thos. Forbes, who, under the name of Joe Bedore, has written such good advice to the Brotherhood in general. It is to be hoped that the defects pointed out by Bro. Forbes (Joe Bedore) in his July letter will receive the sincere attention of the different Locals, and be remedied at the coming convention.

On the 30th of June No. 17 held one of the hottest contested elections in her history, which resulted in the following selection of officers: Pres., John Forbes; Vice Pres., F. Hughes; Rec. Sec'y, Frank Campbell; Fin. Sec'y, Phil Andrich; Press Sec'y, W. Griffin; Insp., E. Hawes; For., M. Conine.

Our old officers retire with the satisfaction of knowing that under their guidance No. 17 nearly trebled her membership, and also has a snug bank account to her credit; with the help of the members it is to be hoped that the present officers can sing as good a song six months hence.

To a stranger No. 17 would certainly have the appearance of a union of constitutional lawyers, as there are always plenty of constitutional interpreters at every meeting.

In the agreement with the 'Phone Co. here, all brothers must have working cards. The question arose that under the constitution said cards are good for three months without further payment of dues. If such is the case, this gives our migratory brothers a chance to do the very thing pointed out by Bro. Forbes (Joe Bedore) in his July letter. I would like to know if No. 1 has met with this difficulty, and if so, how has she overcome it?

In conclusion will say that No. 17 is hustling to the front, with all members working, although as yet prosperity is just around the corner from Detroit.

W. G., Press Sec'y.

UNION NO. 22, OMAHA, NEB.

We believe that No. 22 has not been heard from for some time, as we have not had a Press Sec'y, and all the boys have been busy.

The T. H. Elect. Light Co. are changing their plant; that is, taking out all the old machinery and putting in three 600-h.-p. direct connected machines. They expect to put arc lights and everything on alternating current, and it has kept the boys busy—those who are left of us.

Bro. Vian met with a painful accident last week. He was changing a day arc circuit and in making a connection got his head against a tie wire on the opposite side and was burned and fell from the ladder on to a motor platform. Although badly hurt internally he is improving, and will soon be at work again. Work is quiet outside of the changing being done by the T. H. Co., and that will soon be done. The Trans-Mississippi Exposition is very slow, and work won't commence on it before fall.

I think it would be a good thing if we would change our grip and signs, for there are lots of linemen traveling around who have got them and have not been in a lodge room for three years. I would like to hear from some of the other brothers on this subject.

F. E. ENSMINGER, Press Sec'y.

UNION NO. 26, WASHINGTON, D.C.

Local Union No. 26 meets every Saturday evening at their hall, 623 Louisiana Ave., N. W. We have tried every other night in the week to get the boys to come around, without success, but it seems we have it right at last. We have had two meetings, both of which were very well attended, considering the season.

Work has picked up a little here. The Soldiers' Home job has been started and will give five men about eight to twelve weeks' work. The work is being done as day work.

Our ex-President, Bro. Patterson, has just finished a large contract for Royce & Mareau, at Cabin John's Bridge. On this there were about fifty direct current fans, fed from a 110-volt dynamo driven by a 500-volt motor, fed from the street railway circuit. Alternating current was used for the lights, 300 in number.

I would advise traveling brothers to stay away at present.

Local 26 has had its election of officers, and following is a list of those chosen: S. M. Wilder, Pres.; C. L. Tichner, Vice-Pres.; T. E. Bessman, Rec. Sec.; I. B. Brown, Fin. Sec. I am satisfied that all the officers will work hard to build up and strengthen the union, as they are all energetic and not too strong for light work of this kind.

As this is the 17th and time is limited, I will confine my letter to a few remarks in regard to our Local. We have had a little trouble to keep some of the shops here in the union, but we are going to try a contract with the contracors, which will be big help if we can make it go. We have all the shops in town in line of any account, with the exception of the small umbrella repair shops.

The Rec. Sec'y of No. 26 would like to learn the whereabouts of Bro. C. B. Shepherd.

We would like to see some of the following questions discussed in the columns of the Worker: The most practical way to secure eight hours. While some of our members have it, others are still working ten. We have split the difference, working nine.

How can we keep our members in the union? It is easy enough to get the men in the union, but it is quite another thing to keep them in. I, as a unit of the N. B., endorse No. 50's sentiment, published in the June issue of the Worker.

C. L. TISCHNER, Press Sec'y.

UNION NO. 32, BURLINGTON, IA.

No. 32 is coming up all right, and success is hoped for by all the boys. We held a meeting Sunday, July 11th, that proved satisfactory to all, and had a full attendance of the charter members, with the exception of two.

Our organizer, Mr. Bohlen, was very successful in having all the officers installed, and now wears a pleasant smile, which speaks better than words that he is proud of his success.

Everything here seems unusually good at present, as the wire and pole work of the Mississippi Telephone Co. (originally owned by J. C. Hubinger of Keokuk, Ia.,) is progressing nicely, as they now have about thirty linemen engaged in stringing cable and doing general construction work. Chances are that there will be work here for quite a while yet. I am glad to say that Mr. Ross, who is employed as foreman by that company, is very particular as to the qualification of his employes.

The Ia. U. Tel. Co. is doing quite an amount of work here. Also toll line work in this vicinity.

Two of our boys have taken out traveling cards, and no doubt they will be presented at St. Louis, as that was their destination. I hope they will be successful in getting employment, as they are qualified for any position they might receive.

E. T. COLLINS, Press Sec'y.

UNION NO. 35, BOSTON, MASS.

Local 35 has taken a new lease of life, also of a commodious hall and office situated at 49 Bennett St. in the same building and directly over the quarters of the Building Trades Council, where it held its last regular meeting, at which the following officers were elected: Pres., John A. McGinnis; Vice Pres., D. B. Smith; Rec. Sec., Dan McGillvary; Fin. Sec., R. H. Bradford; Press Sec., Patrick S. Ryan; Treas., D. F. Flynn; Insp., William Hubbort; For., Maurice Sheehan; Trustees, John J. Larkin, Abraham L. Sprague and John Costello.

I suppose that our brothers will be glad to hear that No. 35 is increasing her membership at every meeting, and has opened a labor bureau at our new quarters; we are also preparing to take vigorous action against contractors and corporations doing electrical work with non-union men, and on this score you are liable to hear from us in the near future.

Of course you must bear in mind our great handicap in having no intelligent inspection of wires in the city of Boston, but notwithstanding this and the terrible stagnation of business, No. 35 feels able to make battle with the strongest at the present time.

PATRICK S. RYAN, Press Sec'y.

UNION NO. 38, CLEVELAND, O.

If ever there was an object lesson for the workingmen of this country to contemplate it is the strike of the coal miners now on. No one doubts for one moment the success of the strike if they were only organized as they should be. West Virginia is the stumbling block, and why? Simply because they are not as well organized in that State as in Ohio, Pennsylvania, and Indiana. If the organization in West Virginia was complete, the strike would be won without a doubt, but the "if" is in the way; and what is true of the coal miners in West Virginia is true of the N. B. E. W. of A. in all the States, so that you will see that in order to be a success we must not only organize in one State but in each and every one, and that thoroughly. When we are completely organized in every State, city and town, then we will be of some account in the world, but until then we will have to put up with a great deal that is distasteful and humiliating. I notice a disposition among many people of high and low degree to rail and find fault with the men who are at the head of the big corporations, companies, and trusts. They seem to delight in abusing the men who make large fortunes, when the facts are

that nine out of ten of the people who rave about the millionaires would be plutocrats themselves if they only could be. Why, then, I ask, should we condemn the man? Why not turn our attention to the system that allows these men to pile up such fortunes, while you and I work from one year's end to another and grow poorer each and every year? When I ride from one end of the city to the other over the network of railroads, when I see the ships that sail the great lakes, that represent millions of money; when I see the 15-story block in this great city; when I see the vast manufacturing plants located along the river and railroad, I sometimes say to myself I wish I owned these, and then I think if I owned these industries what great good I would do; what a benefactor I would be to my fellow men; what big wages I would pay; how I would help the poor; how I would give to sweet charity, and, in short, what a noble life I would lead, and what an honest, upright man I would be; and when I have said all this fine stuff to myself, I immediately turn around and say to myself: "You are a liar! you would do nothing of the kind; you are no better than any other man; you would do just as other men do; you would be a plutocrat, a labor crusher, a tyrannical master, and a hater of labor and labor organizations." Human nature is very much the same in a poor as it is in a rich man, only one has the opportunity and the other has not. So then, I say, it is foolish to howl at the men who have taken advantage of the bad laws that have been enacted from time to time, but let us down the system that allows one man to amass millions while his fellow man starves.

No. 38 will hold its annual picnic Saturday, August 21st, at Crystal Lake, and a big time is expected.

Bro. Andy Herron has gone into the manufacturing business. He has a patent electric mail box, and those who have seen it say it is the finest thing out. It sells on sight, and any brother out of work would do well to write Bro. Herron and secure territory before it is all gone. There is money in it, if rightly handled.

Hello, No. 17! Who smokes the cigars? Let Bro. Kelly decide at once.

THOS. WHEELER, Press Sec'y.

UNION NO. 44, ROCHESTER, N. Y.

We were among the missing in the last issue of the Worker, but will have to get in line this month sure, as it gets monotonous to hear about fifty brothers, one after another, ask what's wrong with 44. Well, I'll tell you why I was lost, and all about it. Firstly, there was nothing to write about; and, secondly, it seemed rather hard for me to come out and say that we had not formed or drawn up any agreement with the contractors of Rochester after my last letter to the Worker, in which I spoke very encouragingly of it, as at that time the prospects for it were very bright. It is too bad that a Local the size of our Local has got to wait until it sees what the other labor organizations in town are going to do before we can make up our minds what is best for us, instead of going ahead and letting others follow, as No. 1 and a few of the other Locals did. The third and last great reason was that we expected to have an election of officers, and perhaps some one would be lucky enough to get a chance to write except "yours truly," but it seems that the boys are just as backward about this as they are about the contractors' agreement, and seem to be satisfied with most any sort of letters.

Well, I will do the best I can, and try to get in every month, but I must say the boys are easily satisfied.

At the last election of officers, Bro. Wm. Breeze was elected President; and, let me tell you, boys, there is the right man in the right place. Ever since he has been a member of No. 44 he has always had the union at heart, and if he continues as he has commenced No. 44 will have no cause to complain.

Last week your scribe put in a 100-light incandescent plant for the Standard Electric Cons. Co. The plant was in a paper mill, or, more properly speaking, a strawboard mill, and in wiring the building we ran across places where the thermometer stood at 165 degrees; but say, boys, it taught me a lesson, and it should also be a lesson to every other brother who is inclined to forget to keep his dues paid up, as I understand that all good brothers do not have to stand any greater heat in after life than that, and I can tell you one thing now, 165 degrees is hot enough for "your Uncle Bill."

I met Bro. Jack Madden the other day, and he says that his leg and foot, which were crushed by a pole falling on them some time ago, do not seem to improve any. In fact, he has a hard job getting around, although he is working every day. He says that he did not have proper care at the hospital, and such being the case, I think it a good plan for a few more of the brothers to call around and look after the sick, instead of leaving it all for the sick committee to do.

I think it would be a good plan for some of the members to drop around on State Street once in a while, at least once a month, so that we can get acquainted with each other.

Well, I know it is hot weather, but we are going to have some fans, and would like to have everybody come up and help decide the make—eh, Tommy?

I heard this morning that we are to have a new system of telephoning which will be much cheaper than the old system, but I do not know what it is, but will let you know all about it in my next letter.

F. GRAHAM, Press Sec'y.

UNION NO. 45, BUFFALO, N. Y.

The old truism that "you can't get blood out of a stone" is applicable to the conditions at the present writing. There is no news to speak of, yet I believe in being in evidence for a' that. The Niagara Falls Power Co., which, in this city, is nothing more than the Buffalo General Electric Co., are putting down their conduits, and will soon be ready to furnish power to the public. A fine electrical display is looked for during the G. A. R. meeting next month.

Coming with the falls power are many electrical workers, good, bad and indifferent, and only one out of six holds membership cards in our order. Those that don't, "tarry but a few," as the frost they find here hurries them on to more congenial localities.

The Western Union and Trolleyites played their annual game of baseball Sunday last. Bro. Fassett was in the box for the Western Unions. This was much against the wishes of many, but as Bro. Fassett swore he had been practicing inshoots, outshoots, and "shooting the chutes" all winter, he beat down the opposition. Capt. (Bro.) Woods, however, remembered Fassett's love for clothes and his actions last year at the end of the second inning, seeing the score 7 to 0 in favor of the Trolleyites, without further ceremony lifted Mr. Fassett bodily from his position, and the second suit of clothes is yet to be won. Capt. Woods finished the game, and his swift curves cut off further run making. Bro. Hopkins did well as pitcher for the Trolleyites, but his support was bad. Those who are familiar with the game and were in a position to see, say that Bro. Hopkins' supporters were troubled with too much Trilby; whatever that word conveys is unknown to your correspondent.

There is some agitation towards splitting up Local No. 45 and forming another body. Many believe it for the best, as the membership is growing rapidly, and it is thought the city has workers enough to support two healthy locals.

W. H. KELLY, Press Sec'y.

UNION NO. 56, ERIE, PA.

Well, Mr. Editor, No. 56 is still on the move. We are nearly fifty in membership, and from the way the applications are coming in we will soon pass the half-hundred mark.

The new 'Phone Co. is going right ahead puting up poles and getting things in shape, in spite of the petty annoyances from the old company, whose lines are only to be compared with streaks of rust on the right of way. One of our union men, Mr. Peter Jacobs, has been chosen as foreman for the new company, and the choice was a wise one, Peter having all the good qualities needful for such a position, which are too numerous to relate. It won't do to strike Peter for a job unless one has a card paid up to date, and men without cards stand a small show in Erie.

Our genial city electrician, Bro. Billy Crane, is very busy just now changing over the police lines from grounded iron circuits to copper metallic, also making some needed changes in the fire alarm lines in the shape of copper circuits.

The Merchants' & Manufacturing Co. are enlarging their plant, by adding a new engine and a 3,000-light dynamo.

We had one of the finest meetings on the 14th of July that we have had since our Union has been in existence, thirty-six members being present. It does everybody good to see the boys turn out so well—in fact, every member of No. 56 has been appointed a committee of one to see that all the rest of the committee is present.

Bro. E. E. Hart, alias Colonel Hart, one of our good jolly boys, is in Hammot Hospital with one of the small bones broken in the calf of his leg. He has been laid up since the 2d of July, but we expect he will be at work in the near future. Some of the skin had to be taken from the thigh and grafted on where the small bone is broken. Thanks are due to

the good nurses and wise treatment he has had at the hospital.

We are still waiting for the cyclone of prosperity to strike Erie, and from the way the Erie City Iron Works and some of the other shops cut off ten per cent. every time one of the directors wants to go to Europe or the Hot Springs, it looks as if it is coming the wrong kind of a cyclone. I copy the following from the Cleveland Press, and I wish the millions of wage-earners could read it:

" 'Inside the next ten years this country will see the most awful revolution that has astounded the world of late. That is my firm conviction, based upon more than one visit to the United States."

"The speaker was W. Pritchard Morgan, Liberal member of Parliament for Merthyr-Tydfil, Wales, who is known in Great Britain as the 'gold king,' because of the magnitude of his gold mining properties in North Wales. Mr. Morgan had just arrived in New York from a trip around the world, having come East from San Francisco.

" 'There is not a thing wanting in this country,' he went on, 'to make it the greatest and richest in the world; yet you choose to destroy yourselves by your infernal politics and your protection. You are so full of politics that you are forever making laws. You make laws to protect this and that branch of manufacture, but you don't make any to protect the workers.

" 'These trusts and combinations that are being tried for conspiracy are undoubtedly lawless concerns, and yet the laws are all made for their protection and the unfortunate consumer has to pay the piper. In England such trusts would be punished.

" 'If some reformer does not rise up and alter things here inside of eight or ten years this country will be in a state of terrific revolution.' "

If one wants to see the class of people who come here to be supported, let him look at the train which passes through Erie at 5 P. M. daily, and see one or two coaches of dagos, dirty, black and ignorant, and yet who expect to get work in America. Ye, gods, Mr. McKinley and some of you aristocratic Senators, if you don't do something else besides put a tariff on things we eat and wear, if you don't stop this damnable horde of the scum of Europe, you will hear something drop in the near future. If you are going to protect the laboring man, do it by putting a stop to foreign emigration. Give us who are here now and out of work a chance to earn a living.

I see by the papers that a man starved in Kansas, and yet we give away corn to English subjects in India. Well, I will say this much to finish: If Mr. Hanna, who runs things his own way, don't hire some Americans in Erie pretty soon he ought not to receive any American dollars from the government paymasters. Let everybody shout and eternally keep at it, "Stop emigration and give Americans a chance." E. T. I., Press Sec'y.

LOCAL UNION NO. 61, LOS ANGELES, CAL.

Local Union No. 61 held its first annual picnic on June 20th. Valuable prizes were offered, which brought out a large attendance. The committee of arrangements worked with untiring zeal, and were rewarded with a snug sum on the credit side of the column. This being our first venture in this line, some of the boys were a little dubious as to the result, but all doubts are now set at rest and the outcome will lead to something of magnificence to take place during the coming winter. Of this I will tell you later.

Now in regard to the contests. I think they will compare favorably with similar reports that have appeared in the Worker. In the pole-climbing contest, a 54-foot pole was used. Bro. L. E. Edwards would undoubtedly have won first prize, but in coming down the pole his spur straps broke, and he was unable to hit the pole below the mark, and so lost the contest. His time was 17 seconds. The first prize went to R. L. Fisher of Pasadena; time, 20 seconds. E. Nelson secured second prize. In the cross-arming contest, 30-foot round cedar poles were used. In this Bro. Edwards again distinguished himself, and meeting with no mishaps this time carried off first prize. Time, 5 minutes, 46 seconds. Second prize won by Egbert Francis. In rope throwing, No. 8 sash cord was used, no weights allowed. The wire was stretched fifty-three feet from the ground. Everybody conceded that Bro. Buchanan would have a walkover, and although he placed the rope on the wire at the first trial, there were others who followed him closely. Scott Allen was awarded second prize. In wire connecting, the prizes went to Bros. Yearsley and Fletcher, in the order named.

These contests were free for all, and everybody cordially invited to take part in them. The judges selected were: C. J. Corcoran, assistant superintendent Sunset Tel. & Tel. Co.; W. A. Raymaker, foreman West Side Lighting Co.; Chas. Rice, formerly in electrical business. The decisions rendered gave general satisfaction.

How often, as we read the various letters as they appear in the Worker, the perilous live wire gets in its work, and claims another victim for its own. Such was the case in this city at 4:20 o'clock July 2d. Frank McAttee, a lineman employed by the L. A. Lighting Co., was instantly killed while on a pole making a connection. He was a man of long experience, and perhaps had grown a little careless, and it was owing to this unfortunate lack of precaution that cost him his life. A statement of the facts cannot be obtained from any of those who were at work with him, but from an examination of the work it can readily be seen how he met his death. Two No. 00 insulated wires had been strung about two blocks and then diagonally across the street, where they tapped on to two other wires, evidently to act as feeders. These wires were lying loosely upon the cross-arm and were dead, or supposed to be by McAttee, when he took them up the pole to connect them up. It is very evident he considered them dead wires. About six inches of the insulation was removed and a turn taken around the cross-arm temporarily. McAttee took one wire and in making the connection his arm touched the end of the other wire, and the thing was done. An examination proved that while both ends of the wire had been connected, it still remained lying on the cross-arm. Brothers, form your own conclusions. McAttee was 30 years of age, unmarried, and has a mother and sister living in Hiawatha, Kan. The remains have been sent East.

Bro. L. E. Edwards left June 24th for Butte, Mont. He carries with him the best wishes of every member of No. 61.

W. A. WOODIS, Press Sec'y.

UNION NO. 66, HOUSTON, TEX.

As I have been elected to the honorable office of Press Sec'y, to fill the place of Bro. Stevens, resigned, and the time for sending in something being limited, I guess I had better hurry up; but as I have just returned from an extended trip to St. Louis, I do not know whether I will be able to write much or not. So long as the boys see a letter in the Worker they never kick, but just let a month pass and there is a howl.

The Amalgamated Street Railway Employes of this city went out on a strike July 3d. They struck because the company refused them the right to organize. There were very few cars running, and those that did were only an expense to the company, as the people refused to ride, and those who did not own horses or bicycles walked. The boys were very orderly, doing no damage to the company's property, thereby creating public sympathy and winning the strike after being out but two days. The company now recognizes the union and gives union men preference. This is considered a great victory for organized labor in this city, and has been the means of bringing others to the front.

When the bosses and contractors see the people are with the laboring class, they know it is time to give up the fight, as did the street car company.

A committee from Galveston No. 71 visited us Sunday, July 17th, for the purpose of adjusting the difficulty existing between the two Locals. We called a special meeting and talked matters over. Explanations followed on both sides, and the committee returned to the Island City rejoicing, as were we. It was very easily settled, when once we came together and could explain matters, and now Nos. 66 and 71 are on the best of terms, and all are happy.

The Telephone Co. are putting the finishing touches on their underground work and on the new exchange, and will soon move to more comfortable quarters.

Everything is lovely with the linemen. They are reconstructing the overhead wires in the city and suburbs. There is a pretty large gang at work here now. There is not much inside work going on, and one or two of the boys are "rubbering" around looking for something to do. Prospects are very good, however, and I don't think it will be very long before they will all be slaving again.

A bill is to be introduced in the City Council to have the city build an electric light plant of its own, and all of the boys are confident it will go through with a rush, and then there will be plenty of work, and the people will get cheap light.

All the boys are looking forward to the coming of Labor Day, and every one anticipates a good time; in fact, we all expect to have a "hot" time that day.

Everything was about the same here as when I left, except for a few new faces

and a few of the old ones missing, either having left the city or gone astray.

Best regards to all St. Louis boys.

GEO. D. CROSSLEY, Press Sec'y.

UNION NO. 67, QUINCY, ILL.

Having been elected to the honorable post of Press Sec'y, I herewith present you my initial report. In the busy struggle for existence No. 67 still lives, and sends greeting to all her sister unions of the National Brotherhood. Time and tide has borne us on. We have passed another election mile-post, but we did not alter our body of rulers very much. Our warm-hearted Bro. Wagner was again placed at the head, where he has given ample proof of his ability during the last term. Bro. Dolan was made Vice President. There is no doubt he will be all there whenever he is called upon to take the chair. Our Bro. Eddy Nessler was again called upon as Recording Secretary, although he made a strong plea to be spared the next term. Everyone appeared to think his services too valuable to let him off so easily, so he is still in harness and running well, as we thought he would. Bro. McNemee has gone up higher to Financial Secretary, and so vacated his last post, which your humble servant has been called to fill, and if I don't succeed, it won't be because I have not tried. Bro. J. H. Nessler still keeps the bank, and he has demonstrated many a time that he is the right man for the business. Bro. G. Mallinson was made Inspector, and Bro. Constanz Foreman. Bro. Dave Mallinson is the new Trustee, and so we are ready for the charge, boys, and let it be long; let it be strong; let it be all together, with one object in view, viz.: "The uplifting of our calling;" then like the illustrious Light Brigade of Balaklava, we may come out of the fray conscious of having done our duty, no matter how the guns of the enemy threaten us.

Bro. Johnson is around again, after a trying time in the hospital, and has taken up Bro. Eddy Nessler's work, he having had the misfortune to fall and break his left arm by stepping on a banana peel, which will keep him idle for two or three weeks. Then Bro. Dean had his turn, and a rather close call it was, too, judging from the effects. It appears that while at work in the second story of a building on a 1,000-volt alternating wire he became grounded with the tinwork outside, and there he hung for several minutes, suspended over the sidewalk, while the pedestrians stood with awe-struck faces expecting every moment to see him fall. But happily he became disentangled and struggled back to the window, he knows not how. But, thanks to the Fates, he is still with us, and will, I trust, never again meet so close a call.

I trust you will forgive me if I have bored you a little. You know it is my first appearance; so, with greetings to the Brotherhood, and especially those in my profession, I am,

T. R. SLEDDING, Press Sec'y.

UNION NO. 71, GALVESTON, TEX.

As I have been elected to the position of Press Sec'y, lately, I will make my little bow. I hope this is not too late for this month's issue, but I have been detained trying to find out who the St. Louis man is who came here to work on a scab job. A member of the Clerks' Union told me he was a union man in St. Louis. He has been awfully hard to find, and we had several parties on the lookout for him. We even had an expoliceman on his trail. The scab job is the last new elevator on the wharf, and it was scabbed and advertised in several papers in St. Louis. The wiring contract was first secured by the firm of Rutledge & Levy of this city, and they threw it up (to their credit) when they found out it was non-union. After much trouble I find that the St. Louis man's name and address is W. F. Anderson, 2418 Marcus Ave., St. Louis. Who knows him? Bro. Graham, when Press Sec'y, advertised this elevator job in the Electrical Worker. (H. P. Broughton, Security Building, St. Louis, is the electrical contractor.)

Bro. Graham has been promoted to the position of President, and he makes a good one, too. Bro. Tom Payne, after a long and faithful term as President, has retired, but is still a trustee. Bro. Payne is now chief electrician for the City R. R., which is quite a big concern.

Work is only moderate here this summer. Business is badly cut up by the large number of firms.

HENRY FARLEY, Press Sec'y.

UNION NO. 75, GRAND RAPIDS, MICH.

Well, brothers, another month has rolled away, and once more it falls my duty to our order to write a letter to our journal.

Work is not very brisk in our city at present, but still all of our boys are working. The Michigan Bell are putting in three miles of underground cable here. "Old Wheel Hoss" Higgins, of the Citizens' Co., is not far behind. He is putting up 8,000 feet of aerial cable, so the telephone war is as merry as ever.

Bro. Alex McClelland burned his hand quite severely with a gasoline torch, but will be better in a few days, and able to resume his duties as usual.

Bro. Jim Blain has just returned from a two-weeks' trip to Pittsburg, Pa., and other Eastern cities, bringing with him his better half. He says line work is very dull through the East.

All union men here are busily engaged in preparing for Labor Day, which falls in the week of the Michigan State Fair, and a lively time is expected.

A serious accident occurred in our city a few days ago. Chas. P. Sherman, in the employ of the Western Union Tel. Co., was killed almost instantly on the Pearl Street bridge, crossing Grand River. He became crossed with an alternating current of 1,300 volts, and was dashed head first from a 55-foot pole to the rocks in the bed of the river. One of his arms was burned nearly through the bone. His left shoulder was also severely burned. He was a young man 24 years of age, and had two years' experience as lineman. His home was in Streator, Ill. Although not a Brotherhood man, every Brotherhood man here that could be spared from actual duty turned out to pay their last respects to poor Charley. The Brotherhood remembered him with a beautiful pillow of flowers with his name inserted, and also a white silk pole with two white silk six-pin cross-arms, representing the pole on which he lost his life. All electrical workers in the city accompanied his remains to the train, where his roommate and companion took charge until his father's home was reached.

We have changed our meeting night from Monday to the second and fourth Thursdays of each month, to give some of the brothers who are members of other societies a chance to attend more regu-

D. B. M., Press Sec'y.

ON COMBINING.

As the time comes along for another convention, it is good to get ready so that its efforts and expenses may be made productive, as a competent man runs business to make sure of getting ahead. As I am now for a vacation with my cousin in his cow camp just six miles east of the Cimarron Ridge of the Rockies, it seems right for me to sit down and take ink and do my little bit, as here you can't use pliers; and as many of the boys who are good arguers on the floor seldom carry their arguments to the Worker, it may not be amiss if I step in at the breach and give all the argument I can, and I hope not one-sidedly, as, being the son of a school-teacher in England, gave me a view of the duty of the laborer; starting in Chicago at $1.00 a day helping gave me a view of the duty of the boss. If anyone says I am neither flesh, fowl nor red herring I will assent, and suggest that the human being, above any of those enumerated, may combine in himself the essentials of all.

The subject of combination is just now before us, and as "in the blind, senseless competition for place," we (including the courts) are apt to lose sight of first principles, it may be well this time to give my thoughts on the theory, to be followed later by observations on the practice of combining, when I hope to write down what I believe would be improvements in our constitution. "Be sure you're right, and then go ahead."

Now, combination is, in Nature, necessary to any action, and at the bottom of every accomplishment. The first one we read of in Jewish writing is that of Eve and the Serpent, a combine that was too much for Adam, and successful unfortunately. Another corner, said to have been recorded earlier, though happening later, was that of the three friends. It was a failure, and old Job remained staunch.

Again, it takes in living organisms, a combination of two (and in some forms several) to produce others, and many assistants to perfect them, and no one will deny that the zests and interests of life have been made by the Creator to center around this same combination. And so, I say, granting that the association of effort is a factor in progress, let us use it for advance and advance only.

Trades unions are not new. As we all know, the Tower of Babel was never finished. A confusion of tongues was the cause. Now, taking the use of this word "tongues" in other places in the same book, I believe the only reasonable interpretation of "confusion of tongues" is "uproar among speakers;" or, as we sometimes put it, "chewing the rag." Judging from the present, what is more likely than such was the cause on so big a building as the Tower, as no doubt they called it? It seems then likely that there

was or were unions among the Tower men, and that they failed to agree on the increase in the rate as the Tower got high; on questions between the trades; on who should be foreman, or may be on the competency of the architects.

Just a word now on the ethics of combination. Why do we combine? It is not because we are stuck on combining, or hate to work without some one to share. In fact, so little do we now incline to having in common, that when you hear of a combination you know there's a big stake. I believe the bottom reason is, it is the way all nature is made, and we have to and the more we antagonize in one place the more we must unite in another, and if we don't we shall die of solitary confinement, even in cities. Now, combination, like the rest of nature's agents, will work both ways, for good or ill, and the one is as likely as the other. But we are not without a guide. The place you walk to is where you will arrive, and when you get there you will deal with the folks that you find. And sometimes when finished with running a union, the business is busted and bosses hire strangers. The fact hindered is hindered, and helped is helped, and to combine is a game we all can sit down to.

So to answer the question of those we call stiffs: If your union is right, why do your members get left? For short, let me give three reasons: The objects may be wrong or the details to secure them may be wrong, or the men who work the details may be wrong. And to fully answer the question will need an exposition of our civilization, in which we may assume the "stiff" is included, and an analysis of men (and women), of whom also we may take the stiff to be one.

A thing most of us believe is that our civilization and its parts are just what is needed to lead us to perfection, but that belief needs overhauling. E. V. Debs has so far overhauled his beliefs, that our present civilization seems to him so far wrong that it is better to leave it and start another, and I wish him success; but he must be vigilant, a little leaven leavens the whole lump and the general is a part of his army.

Some of us are more and some of us are less in harmony with the nineteenth century plan of advance and its details; and many of us for the attainment of one or two parts of it, will suffer violence to our feelings from all the rest.

Now, particular efforts, as trades unions, may be based on principles that are not among civilization essentials, such as brotherly love; and when a body of men swear allegiance to a society to whose existence certain principles are necessary, and at the same time look for their success in life to a civilization whose principles are antagonistic to these, the situation will be an anxious one, and various individuals will go various ways. When the regard for the objects of the civilization come to exceed the regard for the objects of the society, the latter will break up, unless some foreign influence is brought to bear by some who would keep the society going at all hazards, and I am sorry to say that this is the condition of many trades unions. As time goes on the continual change in the methods and ambitions of life leaves many associations that were at one time in harmony with some of the usages of society with very little that will induce men to join it, and the association must go out, or turn reformer like Mr. Debs, who has taken the plan of holding to the principles of his community, and rejecting those of the prevailing civilization, and I hope he will remain staunch.

To write a list only of the differences between our Brotherhood and our civilization, is more than I could do, and would help little. Our association, however, has for its object the establishment or modification of the principles of those it takes into membership, upon the lines agreed upon by the founders, and so not yet being a reformer myself I will join the rest and assist in the work.

It is then to extend among those of our craft the principles laid down in its objects that our Brotherhood exists, and it is to be kept in mind that where these are antagonistic to or absent from the civilization we are under there must be faithful work to keep in our members the objects of our community superior to those of the community at large. If the objects of our Brotherhood were the same as those of the people in general, and not antagonistic, there would be no need for the Brotherhood's existence. The result of correctly working for an immediate object will be immediate success, and for an ultimate object, ultimate success; and some benefits are of so transient a nature that any time put into them is wasted.

But to return to our answer: The objects of the Brotherhood, and these are introduced by the preamble of the constitution, which seems to me a sort of description of how our civilization disagrees with us wage-earners. The last two paragraphs of it have good sentiments, which, put into practice, would pretty soon lead us to high morals and high wages. But, alas! the practice belongs to the second and third parts of the answer, which, if not in harmony with the general tendency (which they cannot be if based on high aims), will require engineering and self-denial to keep alive. The electrical workers of America, and I believe all other workers, do right to combine or organize, as it is generally called; but it must be borne in mind that in itself organization is neither well nor ill, does not guarantee anything, and a body may become a detriment to its members at any time, by failing to maintain the practice we have been speaking about. And here let me say, sad but true, how many of us talk and do as our usual practice about the opposite of that in the preamble, and brag it is so, and would think it a howling joke to be taken for what we in our preamble profess. I have nothing against our preamble, and it would be risky to intrust me with the drafting of a better one.

Now, to the second part of our answer, the details. I believe and state that the detail of combining is appropriate, and that, being so, at once leads us to the question: What shall the organization occupy itself with? This is certain, that its business shall be different in part at least from that of individuals, and the question then comes up: What provision is there that the business it does will be for the benefit of the whole and detriment of none? This answer is in the constitution. In Art. II. are enumerated twelve objects, five of which can be carried out by individuals, and seven by a combination only. All these seven are good, and without combination could not be accomplished.

In connection with the detail of combining, under present methods, is that of majority rule, and as I can suggest no better way I do not criticise it, more than to say that it appears at times not to give the best results, and that the soundness of a decision cannot be greater than that of the influence that caused it. If the acts of the body must be different to the acts of its individuals, such acts may be met with resistance or derision by some or many of those who would rule the body by their personal practice. And here is a matter that will reward thought, but belongs to the third part of our answer, last but not least: The men who are to put the details into practice, and for whose good the body exists, and to all of whom its benefits should extend.

Individuals vary, and a combination of them has the advantage of being able to entrust different parts of its work to such members as excel in them. But unfortunately many arrive where they are not fitted to stay, and then we may find that the strength of a chain is its weakest link, and the union may go under.

Yes, combination works both ways, and to wind up this article, let me point out that timber is no less necessary in the men of a union than in the trees of a forest. Leaning one way, all of them, neither twisted, crooked nor shaky nor full of "nots," not too much bark, with heads better little than big, and no dead ones.

With good luck and a willing editor, I hope to go practically into the second and third parts of our answer in the two next numbers, and make suggestions for the improvement of our constitution.

DUNCAN PEARCE.

Ponil, New Mexico.

WHEN?

Dedicated to the Workingmen of Our Country.

When shall the laborer cease to groan,
Of hardship and distress?
When friendship, justice, peace and love
Be found in every breast,
When man to man will act as man,
And envy leave the heart.

Then live and move in harmony
And hold no petty spite,
But all will join as Christian men
And treat each other right.

When man regards his neighbor's rights
Just as he loves his own;
And every person be allowed
To reap what they have sown.

What glorious times all men would see.
We long to see that day
When those who make a fair day's work
Receive a fair day's pay.

No favored class, no moneyed kings,
And none to cry for bread,
But each possess a foot of land,
A home to shield his head.

When all will join that manly race
Our women's health to save,
Regard her as a true help-mate
And not a human slave.

When all look with sober minds
To justice, truth and right;
Bring all their strength to raise our youth
To true and manly light.

When wealth not hoarded by the few,
But all may have a chance,
Sufficient tax to meet demands,
And such as all can bear.

No prison labor for reform,
But labor dignified,
To toiling millions looked upon
As our nation's greatest pride.

Our boys be taught some useful trade,
So they can find employ,
Our girls to be raised as useful beings,
And not as parlor toys.

To dress, to gad, to sing and play,
And dance the ball room floor,
But teach them how to keep the home,
And watch the wasteful flow.

—SOLOMON G. BROWN.

Washington, D. C.

Directory of Local Unions.

(Secretaries will please furnish the necessary information to make this directory complete. Note that the *time* and *place* of meeting, the name of the President, the names and *addresses* of the Recording and Financial Secretaries are required.)

No. 1, St. Louis, Mo.—Meets every Monday at 604 Market st. L. H. Daggett, Pres., 1220 St. Ange av.; Geo. Weller, R. S., 2236 Hebert st.; J. P. Casey, F. S., 2702 Spring av.

No. 2, Milwaukee, Wis.—Meets every Friday at 298 Fourth st. John Etges. Pres.; Wm. Raines, R. S.; Joe Harris, F. S., 180 Woodward st.

No. 3, Denver, Col.—E. L. Layne, Pres., 1011 19th st.; Geo. P. Manning, Sec., 1633 Lawrence st.

No. 4, New Orleans, La.—Meets 1st and 3d Tuesdays at Carondelet and Perdido sts. J. McGregor, Pres., 2111 Rousseau st.; C. M. Hale, R. S., 630 St. Mary st.; R. B. Joyce, F. S., 331 S. Bassin st.

No. 5, Pittsburg, Pa.—Meets 2d and 4th Thursdays at K. of L. Hall, cor. Market and Third ave. A. E. Eldridge, Pres., 156 Devilliers st.; H. McGregor, R. S., Nesbit & Allequippa sts.; F. E. Friedman, F. S., 75 Liberty st., Allegheny.

No. 6, San Francisco, Cal.—Meets 2nd and 4th Wednesdays at Forester's Hall, 20 Eddy st. G. P. Manning, Pres., 1812 Geary st.; C. J. Hogan, R. S., 1 Eldridge st.; R. P. Gale, F. S., 1004 Larkin st.

No. 7, Springfield, Mass.—Meets every Wednesday at room 14, Barnes Blk. Wm. Gregg, Pres., 107 Bancroft st.; T. H. Bowen, R. S., 26 Hubbard av.; M. Farrell, F. S., 59 Broad st.

No. 8, Toledo, O.—Meets every Friday at Wallahalla Hall, 317 Monroe st. P. Crowley, Pres., 848 W. Lafayette st.; S. M. Strub, R. S., 1135 Peck st.; Fred Lewis, F. S., 352 Missouri st.

No. 9, Chicago, Ill.—Meets every Saturday at 106 E. Randolph st. J. E. Poling, Pres., 6625 Morgan st.; W. A. Jackson, R. S., 197 S. Jefferson st.; C. W. Beach, F. S., 5812 Sherman st.

No. 10, Indianapolis, Ind.—Meets 1st and 3rd Monday at 29½ W. Pearl st. John Berry, Pres., care of headquarters Fire Dept.; E. Bussele, R. S., 487 N. Illinois st.; E. C. Hartung, F. S., Rooms 5-7 Cyclorama Bldg.

No. 11, Terre Haute, Ind.—Meets 2d and 4th Tuesdays at 8th and Main sts. C. D. Updegraff, Pres., 529 S. Ninth st.; M. Davis, R.S., 918 N. 9th st.; W. H. Schaffer, F. S., 114 N. 14th st.

No. 12, Evansville, Ind.—Meet every Tuesday at cor. 3rd and Sycamore st. Harry Fisher, Pres., 200 Clark st.; A. L. Swanson, R. S., 1054 Water st; A. N. Grant, F. S., 202 Clark st.

No. 14, Memphis, Tenn.—Chas. E. Blake, Pres., 70 Mulberry st.; J. A. Myles, Sec., 207 De Soto st.

No. 15, Philadelphia, Pa.—Meets every Tuesday at 711 Spring Garden st. E. G. Boyle, Pres., Penn. Farmers' Hotel, 3d and Callowhill sts.; E. Hennessy, R. S., 1518 French st.; Chas. T. Lang, F. S., 829 Race st.

No. 16, Lynn, Mass.—Meet at General Electric Band Room, 9½ South st. Jas. Robson, Pres., 46 W. Neptune st.; C. W. Perkins, R. S., 6 Allen's Court; E. J. Malloy, F. S., 86 Cottage st.

No. 17, Detroit, Mich.—Meets 1st and 3d Tuesdays at Room 8 Hilsendegen Block. J. G. Forbes, Pres., 745 Milwaukee ave. W. F. Campbell, R.S., 252 Riopelle st.; P. F. Andrich, F. S., 369 Chene st.

No. 18, Kansas City, Mo.—Meets 2d and 4th Fridays at 1117 Walnut st. J. J. Lynch, Pres., 716 Delaware st.; C. F. Drellinger, R. S., 326 Garfield av., Kansas City, Kas.; J. H. Lynn, F. S., 2215 Woodland ave.

No. 19, Chicago, Ill.—Meets 1st and 3d Tuesdays at 6512 Cottage Grove av. M. J. Sullivan, Pres., 4951 Princeton av.; F. Conklin, R. S., 10717 Michigan av.; J. Haffner, F. S., 2539 117th st.

No. 21, Wheeling, W. Va.—Meets 1st and 3d Tuesdays at Trades Assembly Hall. H. F. Wyse, Pres., Box 111; C. L. Ullery, R. S., Box 111; W. J. Clark, F. S., McClure House.

No. 22, Omaha, Neb.—Meets every 1st and 3d Wednesdays at Labor Temple, 17th & Douglas st. J. W. Watters, Pres., 221 Pierce st.; M. J. Curran, R. S., 1814 St. Mary's av.; W. J. Wales, F. S., 1804 Farnum st.

No. 23, St. Paul, Minn.—Meets 2d and 4th Fridays at Labor Hall, 3rd and Wabasha sts. Jno. O'Donnell, Pres., 4th and Wabasha sts.; Thos. O'Toole, R. S., 333 E. 6th st.; F. Volk, F. S., 175 W. 6th st.

No. 24, Minneapolis, Minn.—Meets 1st and 3rd Wednesdays at 34 and 36 6th st. S. Geo. Heilig, Pres., 18 9th st.; L. R. Stevens, R. S., 18 Western av.; A. Aune, F. S., 3129 Longfellow av.

No. 25, Duluth, Minn.—Meets 2d and 4th Thursdays at room 6 Banning Blk. R. Thayer, Pres., 24 Third ave. W.; L. P. Runkle, R. S., 17 Norris Blk.; Jas. F. Owens, F. S., 414 E. 1st st.

No. 26, Washington, D.C.—Meets every Saturday at 628 Louisiana av. S. M. Wilder, Pres.; T. E. Bessman, R. S., 712 13th st. N. W.; I. B. Brown, F. S., 742 Third st. N. W.

No. 27, Baltimore, Md.—Meets every Monday at Hall, cor. Fayette and Park avs. C. F. Leitz, Pres., 506 S. Pulaski st.; C. P. Taylor, R. S., 906 N. Mount st.; F. H. Russell, F. S., 1408 Asquith st.

No. 28, Louisville, Ky.—Meets 1st and 3d Tuesdays at Beck Hall, 1st st. near Jefferson Calvin Beach, Pres., 1020 W. Market st.; Ed. Herpt, R. S., 607 Magnolia st.; Jno. C. Deibel, F. S., 418 15th st.

No. 29, Atlanta, Ga.—Meets every Sunday at 61½ Alabama st. Geo. Foster, Pres., 100 Walker st.; D. J. Kerr, R. S., 114 Richardson st.; Geo. Raymer, F. S., 121 Rhodes st.

No. 30, Cincinnati, O.—Meets 1st and 3d Mondays at 136 E. Court st. Thos. Spellissy, Pres., 331 W. 7th st.; H. C. Genrich, R. S., 305 Broadway; J. F. Harmuth, F. S., 2158 Vernon st., Clifton Heights.

No. 31, Jersey City, N. J.—Meets 2d and 4th Thursdays at 116 Newark av. Thos. Watson, Pres., 513 Jersey av.; F. J. Anderson, R. S., 228 Washington st.; T. L. Jones, F. S., 137 Grand st.

No. 32, Burlington, Ia.—G. M. Cunningham, Pres.; Hugh Ward, R. S., 1006 Spruce st.; E. W. Ross, F. S., New McCutcheon House.

No. 35, Boston, Mass.—Meets every Wednesday at 49 Bennett st. Jno. A. McInnis, Pres., 86 Washington st., Cambridge; D. McGillivray, R. S., 7 Humboldt Park, Roxbury; R. H. Bradford, F. S., 76 Fairmont st., Cambridge.

No. 36, Sacramento, Cal.—Meets 1st and 3d Tuesdays at Forrester's Hall. J. S. Marsh, Pres., 600 Seventh st.; O. Buckins, R. S., 1415 D st.; L. Shaddinger, F. S., 718 M st.

No. 37, Hartford, Conn.—Meets 1st and 3d Fridays at Central Union Labor Hall, 11 Central Row. M. F. Owens, Pres., 63 Hawthorne st.; D. F. Cronin, R. S., 49 Windsor st.; C. E. Byrne, F. S., 16 John st.

No. 38, Cleveland, O.—Meets every Thursday at 393 Ontario st. R. M. Ross Pres., 59 Colgate st.; J. C. Coolican, R. S., 813 Detroit st.; C. C. Reid, F. S., 60 William st.

No. 39, Providence, R. I.—Meets 1st and 3d Mondays at Phœnix Bldg, 157 Westminster st. H. B. Kelly, Pres., 1950 Westminster st.; M. L. Carder, R. S., 40 Wilson st.; G. D. Higgins, F. S., 8 Carpenter st.

No. 40, St. Joseph, Mo.—Meets every Monday at north-west corner 8th and Locust sts., "Brockaw's Hall." R. M. Martin, Pres., 1702 N. 3d st.; Wm. Dorsel, R. S., 1710 Calhoun st; F. A. Dunn, F. S., 426 Edmond st.

No. 41, Philadelphia, Pa.—Geo. A. Neal, Pres., 3626 Wharton st.

No. 43, Syracuse, N. Y.—Meets 1st and 3rd Thursdays at Greenwald's Hall, cor. Mulberry and Water st.; Wm. Mack, Pres., care W. U. T. Co.; A. D. Donovan, R. S., 310 Niagara st.; S. J. McNeil, F. S., 326 Apple st.

No. 44, Rochester, N. Y.—Wm. A. Breese, Pres., 36 Fourth st.; J. Guerinot, R. S., 120 Campbell st.; F. Fish, F. S., 123 State st.

No. 45, Buffalo, N. Y.—Meets 1st and 3rd Saturdays at Council Hall. Wm. Haley, Pres., 125 Erie st.; Geo. E. Judson, R. S., 63 Laurel st.; C. E. Stinson, F. S., 298 Carolina st.

No. 46, Lowell, Mass.—M. J. Burns, Pres., Police Dep't; Thos. Dalton, R.S. 368 Concord st.; H. E. Maguire, F. S., 95 Christian st.

No. 47, Worcester, Mass.—C. C. Coghlin, Pres. 213 West st.; Geo. R. Lincoln, R. S., Millbury; Thos. Reed, F. S., 61 Myrtle st.

No. 48, Ft. Wayne, Ind.—Meets 1st and 3rd Fridays at cor. of Main and Clinton sts. R. Bartel, Pres., Hotel Tremont; A. J. Lathouse, R. S., 148 Wells st.; G. B. Taylor, F. S., 31 Douglas av.

No. 49, Bloomington, Ill.—Meets 2d Monday at Trades Assembly Hall. C. F. Snyder, Pres., Box 328; Guy Carlton, R. S., East and Market sts.; W. C. Gorey, F. S., 409 S. Madison st.

No. 51, Scranton, Pa.—Jas. Harding, Pres., 601 Meridian st.; P. Campbell, R. S., 1210 Irving av.; Ruben Robins, F. S., 1223 Hampton st.

No. 52, Davenport, Ia.—Meets 1st and 3d Tuesday; A. L. Wheeler, Pres., Atlantic Hotel; J. H. Clark, Sec., 215 Iowa st.

No. 53, Harrisburg, Pa.—C. A. Swager, Pres., 115½ Market st.; Jas. Emminger, R. S., 25 N. 15th st.; C. Anderson, F. S., 46 Summitt st.

No. 54, Peoria, Ill.—Meets 1st and 3rd Wednesdays at 301 Main st. H. Schearer, Pres., 219 W. Jefferson st.; Harry Dunn, R. S., East Peoria; L. C. Crawley, F. S., 115 Washington st.

No. 55 Des Moines, Ia.—Meet every Saturday at Trades Assembly Hall. L. M. Steadman, Pres., 311 W. 4th st.; E. T. Purcell, R. S., Gratis st. S. S.; Fred Robinson, F. S., 1511 Third st.

No. 56, Erie, Pa.—Meets 1st and 3d Wednesdays. J. P. Hanlon, Pres., 23 N. Park Row.; E. T. Indermill, R. S., general delivery; O. J. Oleson, F. S., 29 W. 8th st.

No. 57, Salt Lake City, Utah.—R. Blair, Sec'y, care of Citizens E. L. Co.

No. 60, San Antonio, Tex.—Meets 1st and 3d Saturdays, Meyers' Hall, Alamo Plaza. Martin Wright, Pres., 114 Romania st.; J. P. Gittinger, R. S., 326 Fest st.; W. F. Hendricks, F. S., 1001 Burnett st.

No. 61, Los Angeles, Cal.—Geo. F. Dorner, Pres., 127 W. First st.; W. A. Woodis, R. S., Box 84 Station B; W. R. Kingston, F. S., 1319 S. Grand av.

No. 62, Kalamazoo, Mich.—A. D. Avres, Pres., 534 S. Burdick st.; L. Bellman, R. S., 540 Pine st.; G. E. Tifft, F. S., 324 Sarah st.

No. 63, Tampa, Fla.—Theo. Glinn, Pres., Ft. Tampa City; W. F. Crofts, R. S., lock box 264; Arthur D. Henry, F. S., box 220.

No. 65, Butte, Mont.—Meets 2d and 4th Wednesdays in Good Templars Hall. W. Broadway. Jas. Davidson, Pres., care Phoenix Light Co.; W. W. Talbott, R. S., P. O. Box 1081; A. G. Ellerick, F.S., Gen'l Delivery.

No. 66, Houston, Tex.—Meets 1st & 3d Mondays. G. O. Wood, Pres., 1214 Providence st.; Geo. Sehorn, R. S., 2113 Kane st.; W. V. Fisk, F. S., care Telephone office.

No. 67, Quincy, Ill.—Meets 2nd and 4th Wednesdays at Trades Assembly Hall, So. 5th st. Wm. Wagner, Pres., 517 Sycamore st.; E. W. Nessler, R. S., 523 Maiden Lane; C. H. McNemee, F. S., 916 Main st.

No. 68, Little Rock, Ark.—G. W. Wilson, Pres., care Brown Machine Co.; C. J. Griffith, R. S., care L. R. Tract. & El. Co.; C. M. Milham, F. S., 309 W. Markham st.

No. 69, Dallas, Tex.—Meets 1st and 3rd Saturday at Labor Hall. Chas. Trotter, Pres., Oak Cliff; J. H. Leach, R. S., 196 Gano st.; F. G. Montgomery, F. S., 190 Collins st.

No. 70, Schenectady, N. Y.—Meets 2d and 4th Tuesdays at Trades Assembly Hall, cor. Centre and State sts. F. Litzendorf, Pres., Crane st., Mt. Pleasant; W. A. Birch R. S., 608 Liberty st.; J. D. Betting, F. S., 626 Villa road.

No. 71, Galveston, Tex.—Meets 2d and 4th Wednesdays. W. M. Graham, Pres., care Barden & Sheets; F. J. Schallert, R. S., 2514 Church st.; G. L. Garrett, F. S., 2108 Av. L.

No. 72, Waco, Tex.—Meets 2d and 4th Wednesdays at Labor Hall. Wm. Hodges, Pres., 728 S. 6th st.; Geo. Lockhart, R. S., 800 S. 6th st.; Jos. Hodges, F. S., 728 S. 6th st.

No. 73, Spokane, Wash.—Meets 1st and 3rd Thursdays at Oliver Hall, 336½ Riverside av. Gus Benson, Pres., 504 Nichols Block; T. H. Denter R. S., box 635; C. C. Van Inwegen, F.S., 107 Howard st. S.

No. 74, Fall River, Mass.—Meets every Monday at cor. Main and Bedford sts. W. I. White, Pres., 59 Bowen st.; Jas. Murphy, R. S., 100 4th st.; Thos. Bailey, F. S., 135 Snell st.

No. 75, Grand Rapids, Mich.—Meets 2d and 4th Thursdays. Wm. Orr, Pres., 176 Chatim st.; F. Gunnell, R. S., care G. R. Light & Power Co.; Geo. Higgins, F. S., 263 Terrace av.

No. 78, Saginaw, Mich.—Jas. Hodgins, Pres., 308 N. Franklin st.; John Strachen, R. S., 336 N. 2nd st.; Chas. Ross, F. S., P. O. box 225, E. S.

No. 79, Austin, Tex.—Meets every Thursday night at Maccabee Hall. J. L. Verkaufer, Pres., 1206 San Jacinto st.; Chas. J. Jackson, R. S., Mayor's office; B. Y. Lovejoy, F. S., 109-111 E. 7th st.

No. 80, Cleveland, O.—Mae Patterson, Pres., 54 Gordon av.; Mayme Stanton, R. S., 116 Herman st.; Alice Smith, 186 Elton st.

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